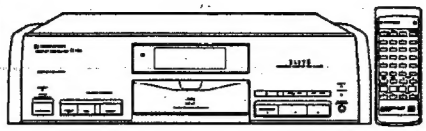
PIONEER®
The Art of Entertainment

Service Manual



● PD-54/KU

ORDER NO.
ARP2730

COMPACT DISC PLAYER

PD-54
PD-S802
PD-S802-G

PD–54, PD–S802 AND PD–S802–G HAVE THE FOLLOWING :

Type	Model			Power Requirement	Remarks
	PD-54	PD-S802	PD-S802-G		
KU	○	–	–	AC120V only	
HB	–	○	–	AC220-230V, 230-240V (switchable) *	
HEM	–	○	○	AC220-230V, 230-240V (switchable) *	
HL	–	○	–	AC220-230V, 230-240V (switchable)	
SD	–	○	–	AC110V, 120-127V, 220V, 240V (switchable)	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to the following : PD–54/KU; PD–S802/HB, HEM, HL and SD; PD–S802–G/HEM.**
- **For the following : PD–S802/HB, HEM, HL and SD; PD–S802–G/HEM, refer to page 40.**

CONTENTS

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IFJ APR. 1993 Printed in Japan

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols ⊣▮▭⊢ (fast operating fuse) and/or ⊣▮▭⊢ (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible ⊣▮▭⊢ (fusible de type rapide) et/ou ⊣▮▭⊢ (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

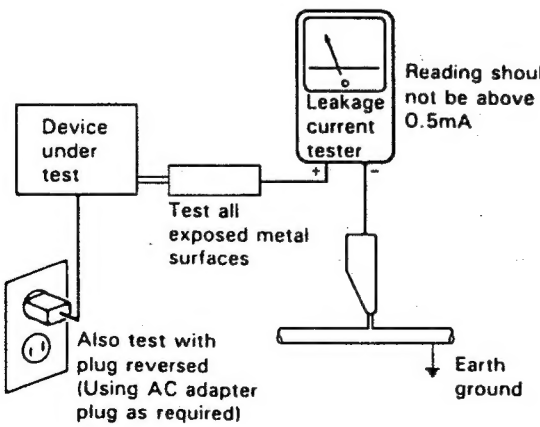
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

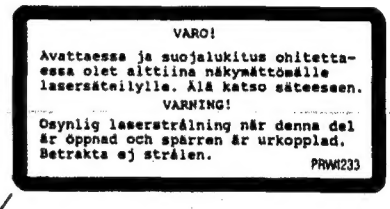
LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

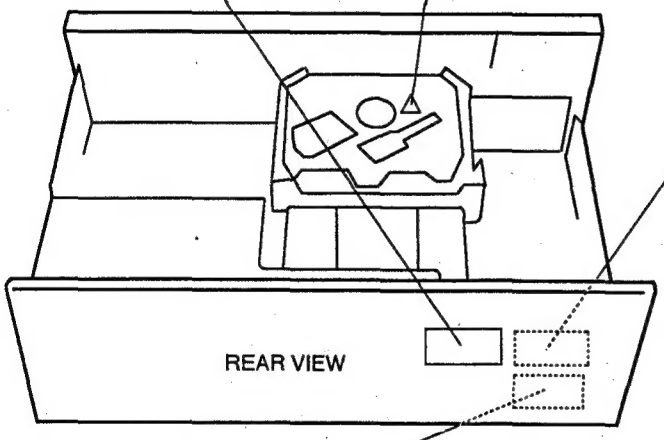
LASER
Picture 1
Warning sign for laser radiation

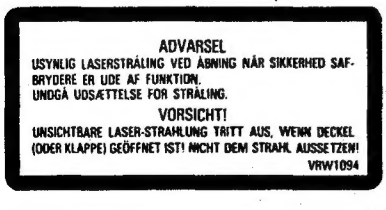
LABEL CHECK

HB and HEM types

HEM type







HEM type

HB type

Additional Laser Caution

1. Laser Interlock Mechanism
   The position of the switch (S601) for detecting loading completion is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S601) is not $\overline{\text{CLMP}}$ terminal side (when $\overline{\text{CLMP}}$ signal is OFF, that is, high level).
   Thus, the interlock will no longer function if the switch (S601) is deliberately set to $\overline{\text{CLMP}}$ terminal side (if $\overline{\text{CLMP}}$ signal is low level).
   In the test mode ∗, the interlock mechanism will not function.
   Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the preamplifier board loaded on pickup assembly are connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

2. When the cover is opened with the servo mechanism block removed to be turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

∗ : Refer to page 32.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

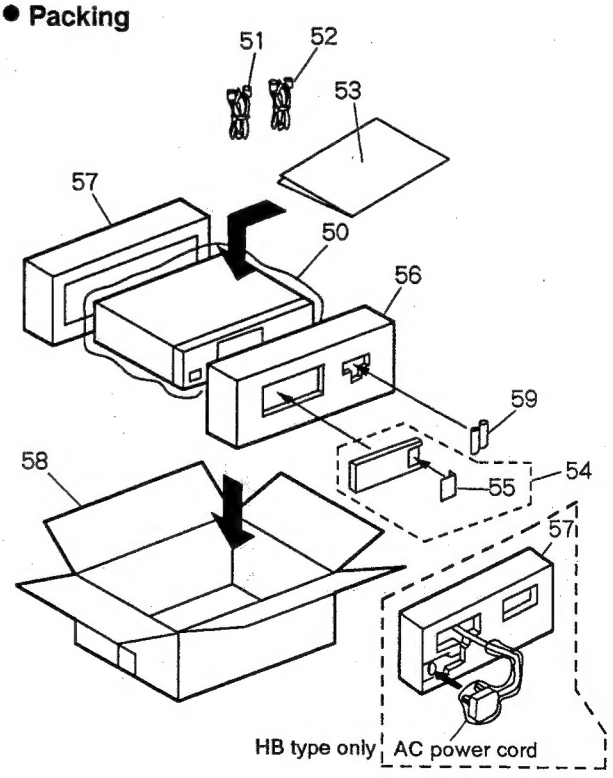
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

2.1 EXTERIOR SECTION AND PACKING

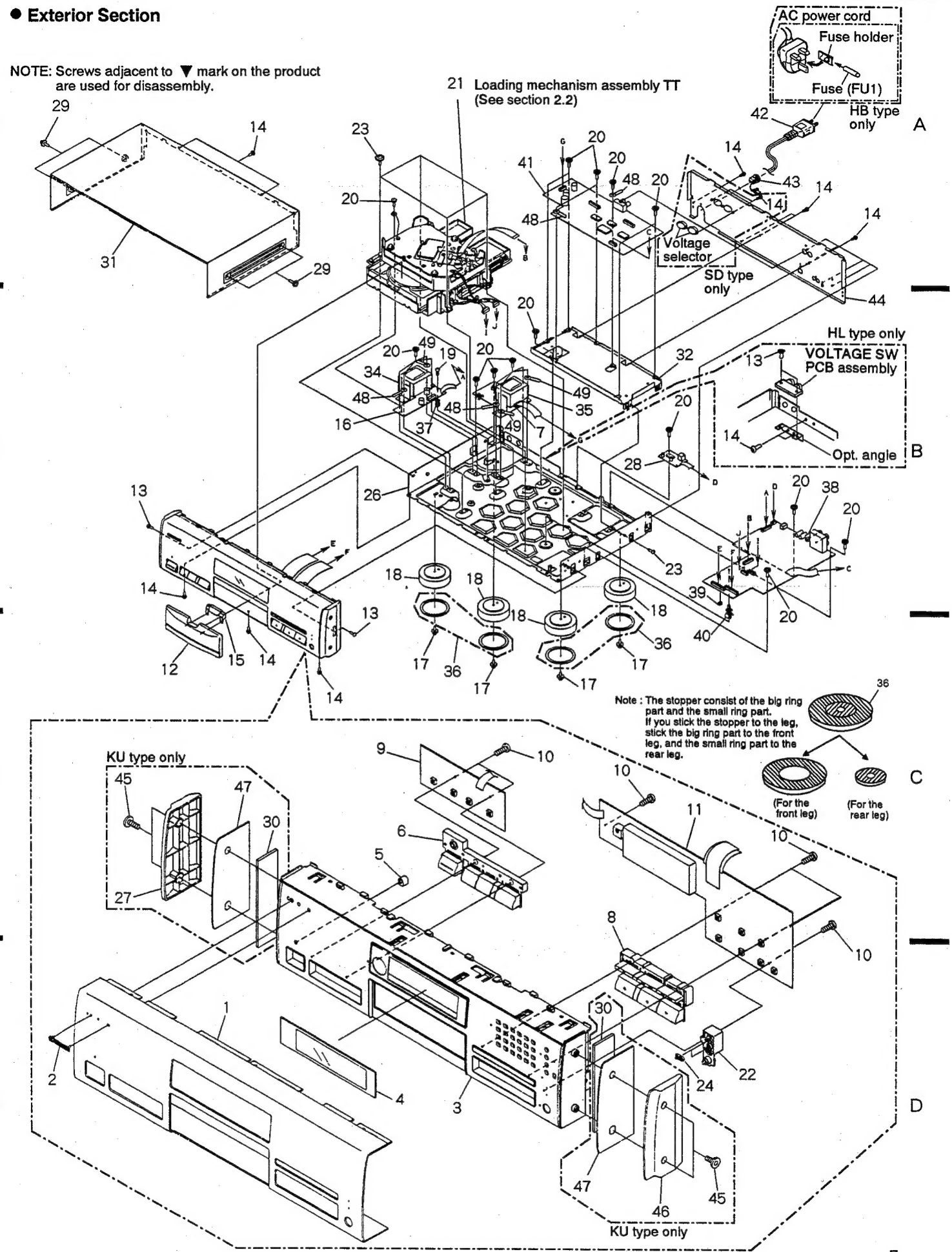
Parts List

Mark	No.	Description	Part No.
	1	Front panel 54	PAN1286
	2	Name plate	RAN1008
	3	Function panel 54	PNW2332
	4	Display window	PAM1622
	5	LED lens	PNW2019
	6	Power button 78	PAC1743
	7	AUDIO TRANS. PCB assembly	PWZ2545
	8	Function button 78	PAC1744
NSP	9	SW PCB assembly	PWZ2543
	10	Screw	PPZ30P150FMC
	11	FUNCTION PCB assembly	PWZ2542
	12	Tray panel	PNW2280
	13	Screw	IBZ30P060FCC
	14	Screw	BBT30P080FCC
	15	Tray lens	PNW2242
	16	SERVO TRANS. PCB assembly	PWZ2546
	17	Screw	IBZ30P080FCC
	18	Insulator	PNW2020
	19	Screw	IBZ30P150FCC
	20	Screw	IBZ30P060FCC
NSP	21	Loading mechanism assembly TT	PXA1521
	22	Output button	PAC1661
	23	Screw	BBZ30P080FCC
	24	Indicator lens	PEA1206
	25	Screw	PDZ30P050FCC
NSP	26	Under base	PNA1973
	27	Panel stabilizer L	PNW2281
NSP	28	COAXIAL OUTPUT PCB assembly	PWZ2502
	29	Screw	FBT40P080FZK
	30	Side sheet	PNM1226
	31	Bonnet	PYY1148
NSP	32	Audio angle	PNA1968
	33	• • • • •	
⚠	34	Power transformer (AC120V)	PTT1269
⚠	35	Power transformer (AC120V)	PTT1270
	36	Stopper	PNM1134
NSP	37	PCB spacer	PNY-404
	38	MAIN PCB assembly	PWZ2500
NSP	39	Cushion (3.5)	PEB1110
NSP	40	PCB holder	PNW2100
	41	AUDIO PCB assembly	PWZ2544
⚠	42	AC power cord	PDG1015
⚠	43	Cord stopper	CM-22C
NSP	44	Rear base 54	PNA2015
	45	Screw	PBA1071
	46	Panel stabilizer R	PNW2306
	47	Side spacer	PEB1247
NSP	48	Cord holder	DNF1128
	49	Cord clamper	RNH-184
	50	Mirror mat sheet	Z23-007
	51	Cord with mini plug	PDE-319
	52	Cord with plug	PDE1001
	53	Operating instructions (English)	PRB1196
	54	Remote control unit	PWW1072
	55	Battery cover	PZN1001
	56	Protector F	PHA1251
	57	Protector R	PHA1245
	58	CD packing case 54	PHG1956
NSP	59	Battery (R03, AAA)	VEM-022

● Packing



● Exterior Section



2.2 LOADING MECHANISM ASSEMBLY TT

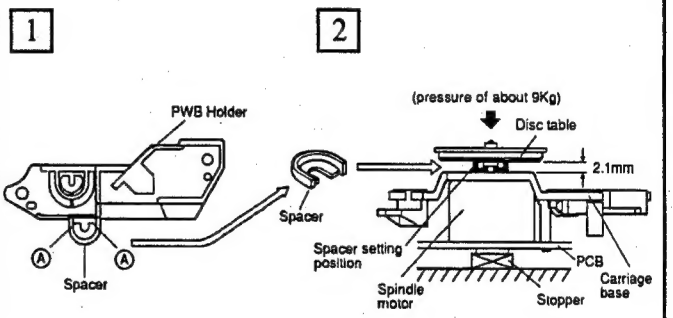
Parts List

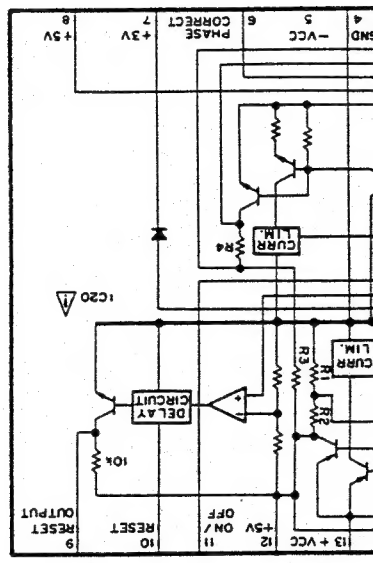
Mark	No.	Description	Part No.
	1	Lever switch (S601)	DSK1003
	2	Float screw	PBA1027
	3	Rubber belt	PEB1186
	4	Motor pulley	PNW1634
	5	Drive gear	PNW1996
	6	Synchronized lever	PNW2168
	7	Gear pulley	PNW1998
	8	SW head	PNW1999
	9	Float base	PNW2000
	10	Left cam	PNW2001
	11	Right cam	PNW2002
	12	Float spring	PBH1120
	13	Lock spring	PBH1121
	14	Float rubber	PEB1014
	15	Table rubber sheet	PEB1181
	16	Tray	PNW2003
	17	Table guide	PNW2004
	18	Lock plate	PNW2005
	19	D.C. motor (0.75W, LOADING)	PXM1010
	20	Float rubber	PEB1031
	21	Float rubber	PEB1170
	22	Screw	BMZ26P040FMC
	23	Screw	IPZ26P060FCU
	24	Screw	IPZ20P080FMC
	25	Turn table assembly	PEA1165
	26	• • • • •	
NSP	27	Loading base	PNW1995
NSP	28	Table shaft holder	PXA1383
NSP	29	Turn table (AL)	PNR1035
	30	Carriage D.C. motor (0.3W)	PXM1027
	31	Pinion gear	PNW2055
	32	D.C. motor assembly (SPINDLE, with oil)	PEA1236
	33	Carriage base	PNW2058
	34	Disc table	PNW1067
	35	Screw	JFZ20P030FNI
	36	Screw	JFZ17P025FZK
	37	Gear 3	PNW2054
	38	Gear 2	PNW2053
	39	Washer	WT12D032D025
	40	Pickup assembly	PEA1179
	41	Guide bar	PLA1094
	42	Gear 1	PNW2052
NSP	43	Gear stopper	PNB1303
	44	Screw	BPZ20P060FMC
	45	Earth spring	PBH1132
NSP	46	Mechanism base TT	PNB1431
	47	Screw	BPZ26P100FMC
	48	PWB holder	PNW2057
	49	• • • • •	
NSP	50	Mechanism board assembly	PWX1192
NSP	51	Binder	PEC-107
NSP	52	Servo mechanism assembly TT92	PXA1479
	53	Stop ring	YE20S
	54	Shaft holder	PNB1382
	55	• • • • •	
	56	Screw	BPZ26P060FMC
	57	Screw	BBZ26P060FMC
	58	Earth lead	PDF1148
	59	Caution label	PRW1244

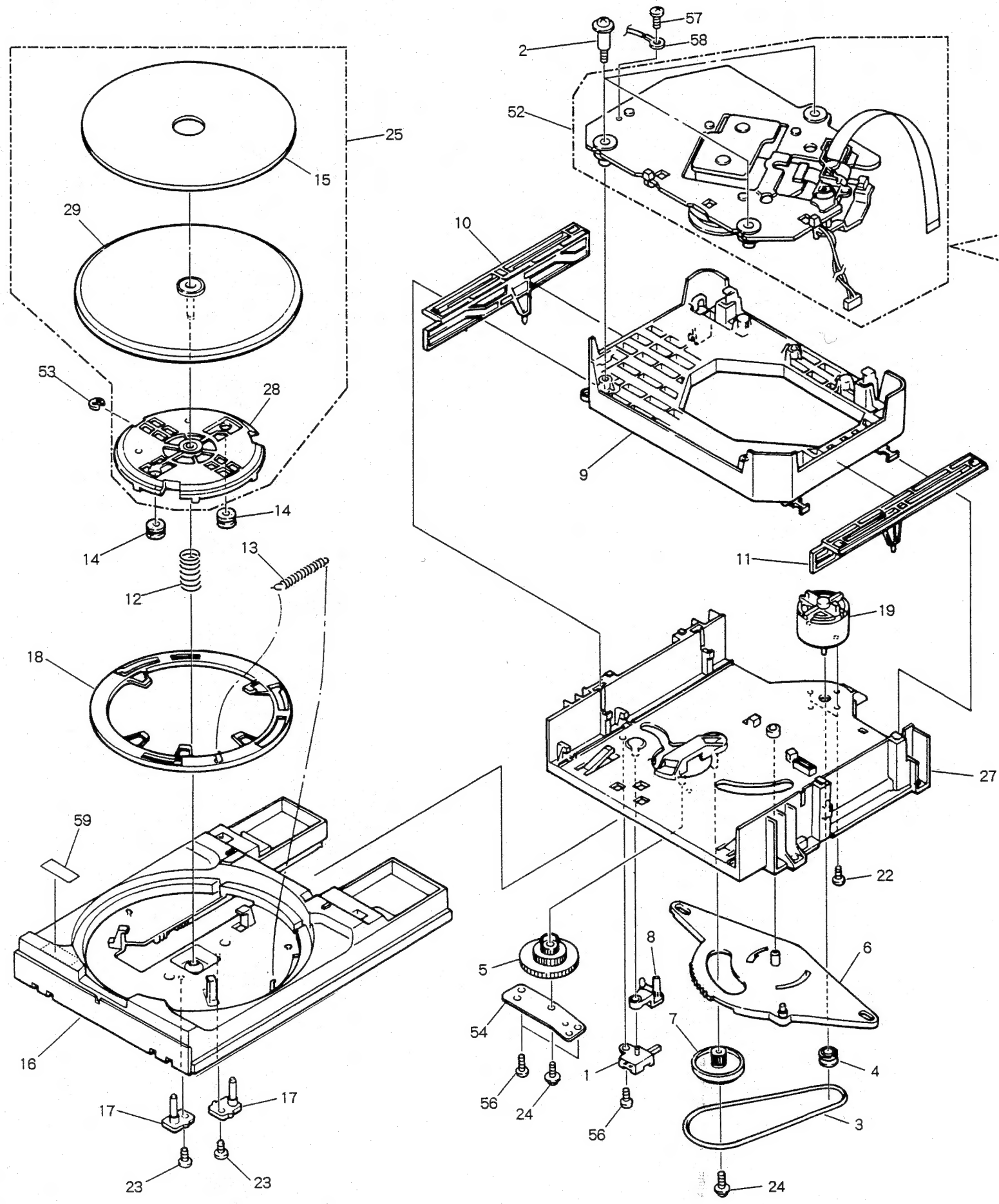
• How to install the disc table

1 Use nippers or other tool to cut the two sections marked Ⓐ in figure 1. Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put the spacer on top of the carriage base and stick the disc table on top (takes about 9Kg pressure).
Take off the spacer.




+5V
PHASE CORRECT
+3V
-VCC
GND
CURR LIM.
R4
ICZ0
DELAY CIRCUIT
R3
R2
R1
10k
RESET OUTPUT
RESET
+5V ON/OFF
+VCC


25
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22
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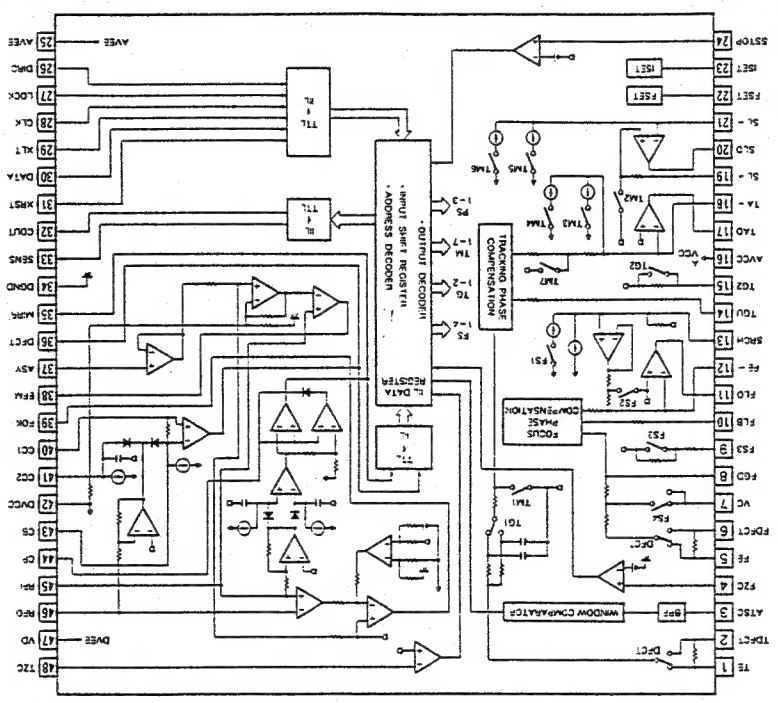
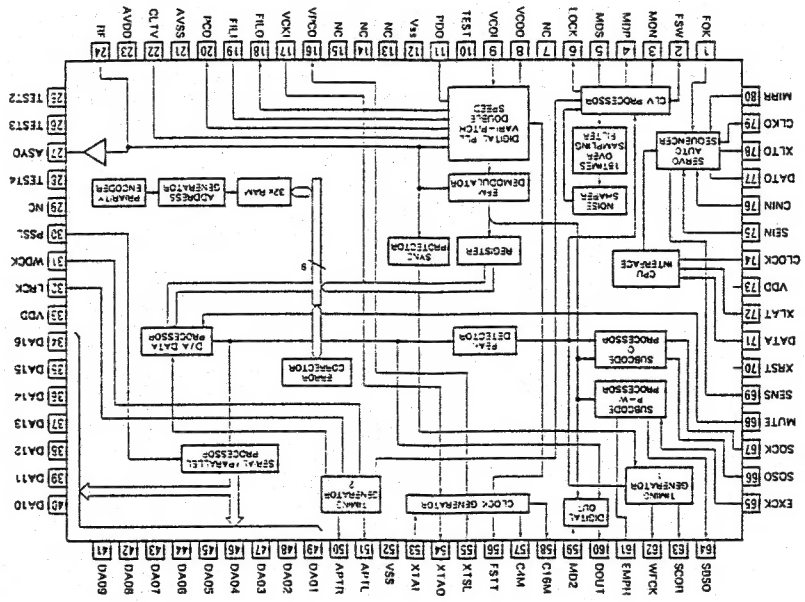
41
34

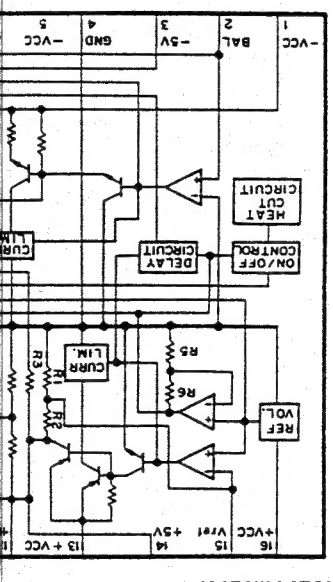
● IC BLOCK DIAGRAMS



IC151 : CXA1372Q



IC301 : CXD2500BQ



IC20 : M5298P

3. DISASSEMBLY

3.1 REMOVE THE TRAY PANEL AND THE TRAY LENS

Hold the tray panel with your hands as shown in Fig. 1, and grasp the tray with your thumbs and then lift the tray panel up while pulling it toward you with the other fingers. (Fig. 2)

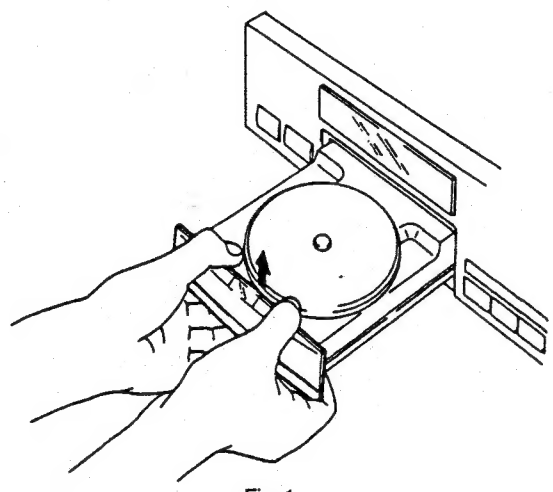


Fig. 1

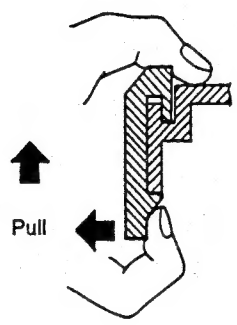


Fig. 2

3.2 INSTALL THE TRAY PANEL AND THE TRAY LENS

Align the tray panel with the grooves located at both edges of the tray while holding the tray lens with your fingers, and then press it down till it stops.(Fig. 3)

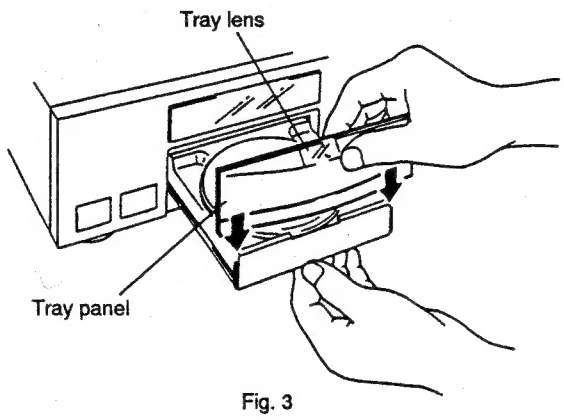


Fig. 3

Hold the tray panel and the tray as shown in Fig. 4, and slide them down till you hear a click sound while pressing strongly with your thumbs. (Fig. 5)

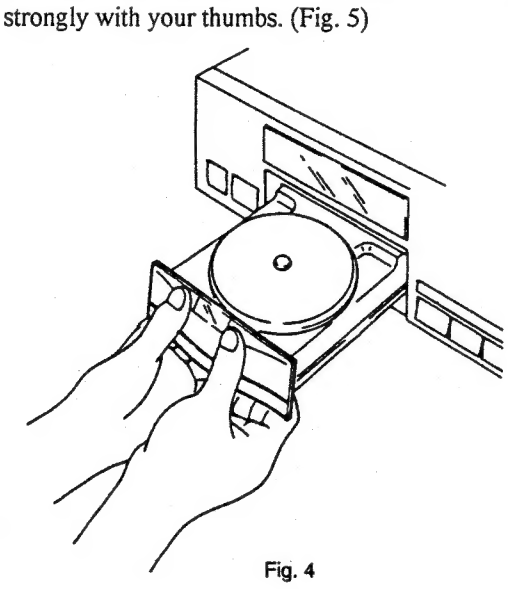


Fig. 4

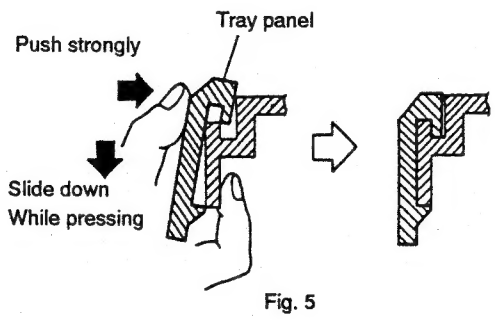
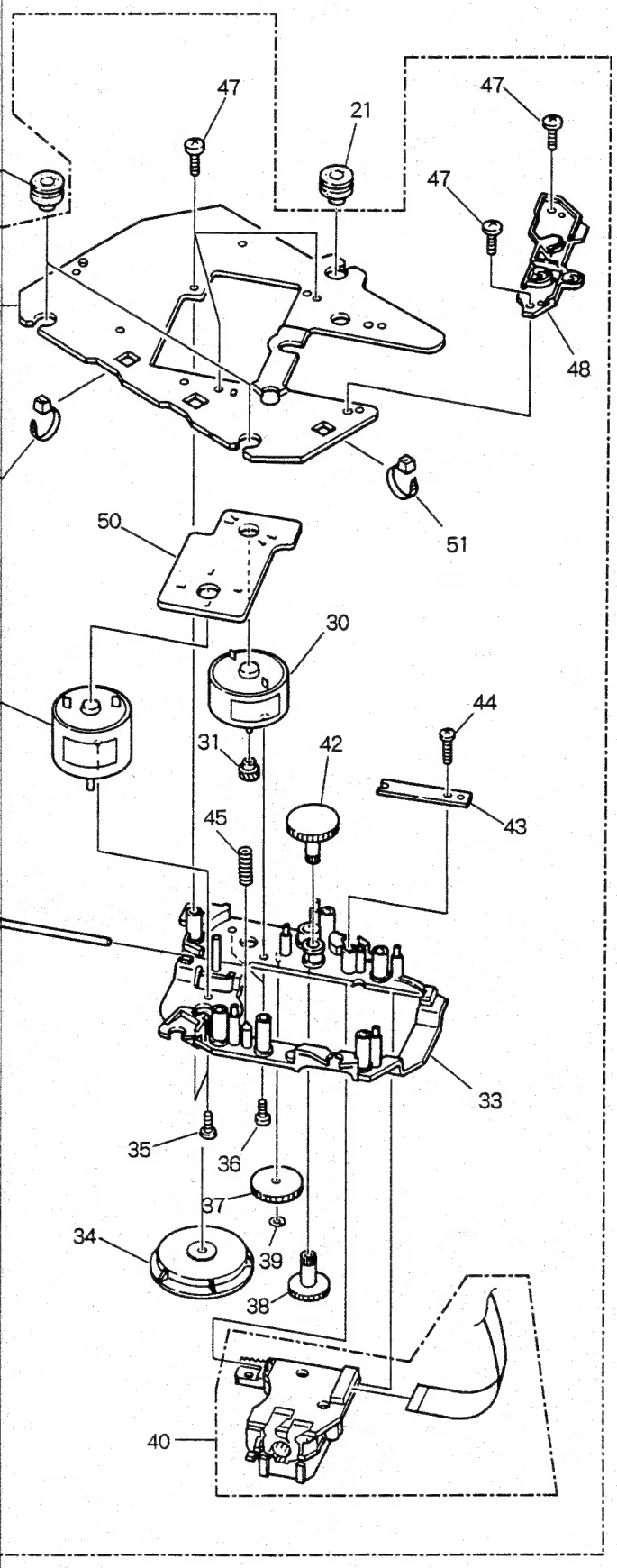
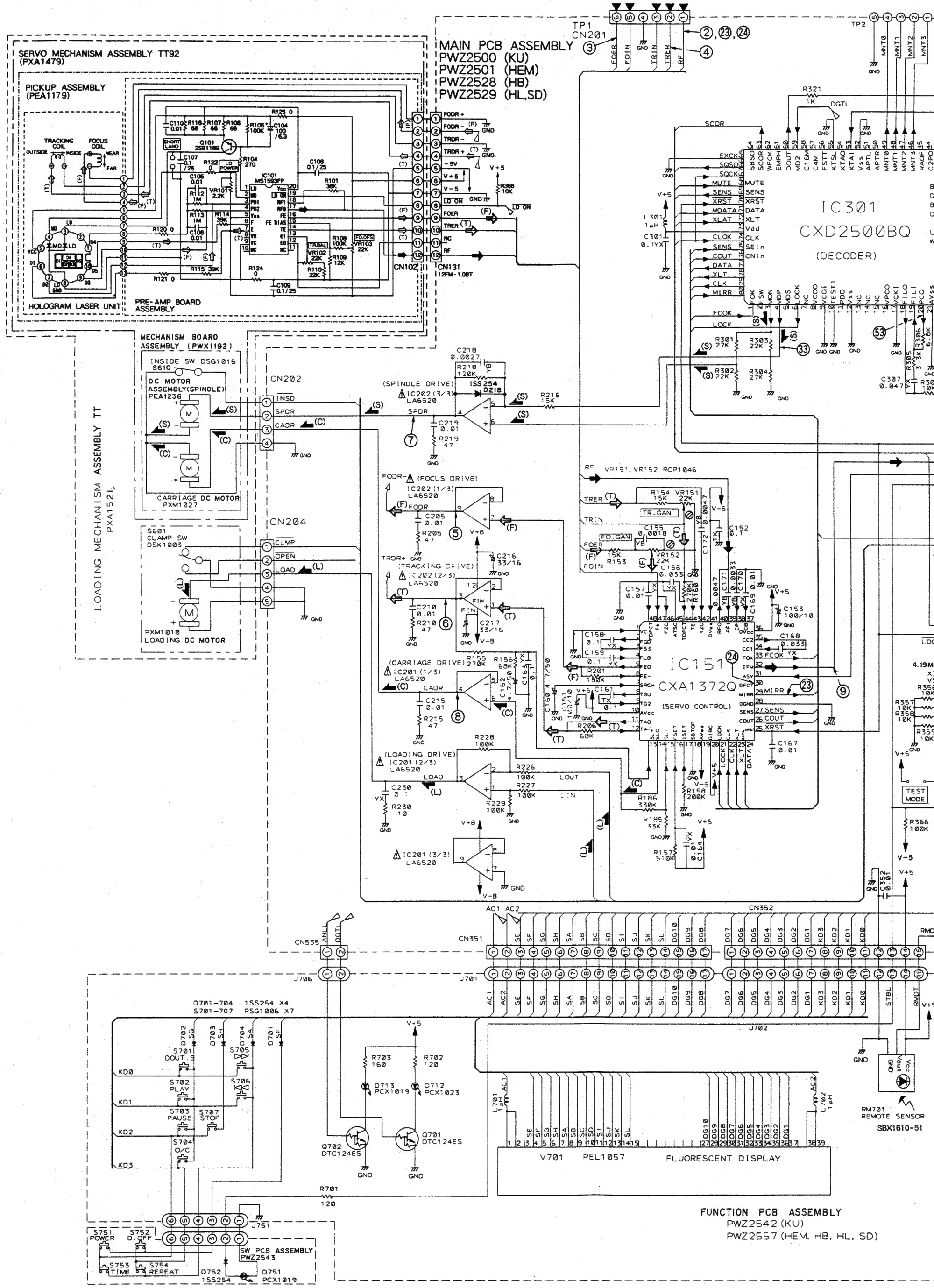


Fig. 5



4. SCHEMATIC AND PCB CONNECTION DIAGRAMS

4.1 MAIN, COAXIAL OUTPUT, AUDIO TRANS., SERVO TRANS., FUNCTION, SW AND MECHANISM BOARD AND PICKUP ASSEMBLIES



SCH-1 MAIN, COAXIAL OUTPUT, AUDIO TRANS., SERVO TRANS., FUNCTION, SW AND VOLTAGE SW PCB ASSEMBLIES, AND MECHANISM BOARD AND PICKUP ASSEMBLIES

ES

SCH-1

: Signal Route
(F) : Focus Servo Loop Line
(T) : Tracking Servo Loop Line
(L) : Loading Motor Route
(S) : Spindle Motor Route
(C) : Carriage Motor Route
▶ : Measurement Point

Note

TYPE	MODEL		
	PD-54	PD-S802	PD-S802-G
KU	○	–	–
HB	–	○	–
HEM	–	○	○
HL	–	○	–
SD	–	○	–

HB, HEM
J302
GND
V+5
1µH L321
C322 470/6.3
V+5D
C321 0.1
TX
DIGITAL OUT OPTICAL
JA301 TOTX178
KU, SD, HL
KU, HB
COAXIAL OUTPUT PCB ASSEMBLY
IC331 MC74HCU04N
PWZ2502
C335 47/25
L334 PTL1003
JA331 RKB1019
R333 75
DIGITAL OUT COAXIAL
R335 1.2k
C336 0.1
C339 0.1
C334 0.01
C333 100/25
IC331
C331 0.01
CN301
J331
J301
CN801
MNT1
MNT2
MNT3
RAOF
C2PO
RFCK
GFS
PLCK
UGFS
GTOP
LRCK (64)
BCLK (64)
DATA (64)
BCLK (48)
DATA (48)
Vdd
LRCK (48)
WDCK (48)
PSSL
NC
TEST4
ASYO
TEST3
TEST2
R312 470
R311 470
R310 470
C302 470/6.3
R308 10K
C303 0.01
C308 0.01
R309 100K
C306 0.0015
C309 0.47/50
R305 3.3K
R306 6.8K
R307 10K
C305 0.047
C307 0.047
VCKI
FILO
FILI
PCO
AVss
CLTV
AVdd
RF
AUDIO PCB ASSEMBLY
PWZ2544 (KU)
PWZ2563
(HEM, HB, HL, SD)
(➡SCH-2)
CN901
LRCK
GND
DALT
CLOK
MOATA
XRST
MUTE
DEMP
ST8L
R365 10K
R364 10K
DGTL
R355 10K
R363 10K
R360 10K
R319 1K
R362 10K
D351 1SS254
L351 1µH
C351 470/6.3
IC351
PD4467A
(SYSTEM CONTROL)
4.19MHz
X351 VSS1014
R356 10K
R357 10K
R358 10K
R359 10K
KD0
KD1
KD2
KD3
REST
C353 0.01
TEST MODE
R366 100K
V-5
V+5
V-8
SYNC1
LDON
RMDT
SENSOR
X1610-51
Q391 2SC1740S
CD DECK SYNCHRO
JA393 PKN1005
L395 1µH
R395 22K
R396 22K
R393 240K
R394 1K
D396 1SS254
D395 1SS254
D397 1SS254
Q391: INVERTER BUFFER
HEM, HB
D391 1SS254
KU, SD, HL
R391 240K
D393 1SS254
L391 1µH
C393 0.01
R392 1K
D394 1SS254
D392 1SS254
L392 1µH
UA392 PKN1004
OUT
CONTROL
IN
UA391 PKN1004
KU
HEM, HB, HL, SD
JUMPER
IC31
IC31 ICP-N10
C60 1/50
C27 470/6.3
IC20 M5298P
PNB1233
HEAT SINK
D54 MTZJ18 B/C
C28 470/6.3
C25 4700/16
C26 4700/16
D11 11ES2
D12 11ES2
D13 11ES2
D14 11ES2
C16 0.01
C15 0.01
C17 0.01
C13 0.01
C11 0.01
C12 0.01
R51 10K
C52 100/35
D52 11ES2
R52 R53 R54 1.5K
CN11
J21
AC2
AC1
AC220-230V 230-240V 50/60Hz
PWZ2547 HEM
PWZ2565 HB
HEM PDG1003
HB VDG1051
PTT1245
235V HB, HPW
HEM
225V
CN1
RKC-061
LIVE
NEUTRAL
HEM, HB
PWZ2548 HEM
PWZ2567 HB
PTT1242
PWZ2628
PDG1003
HL
VOLTAGE SW PCB ASSEMBLY PWZ2630
PSB1006
S5
S6
PWZ2629
AC120V 60Hz
AC POWER CORD
PDG1015
AUDIO TRANS. PCB ASSEMBLY
PWZ2545
POWER TRANSFORMER
PTT1270
120V
KU
SERVO TRANS. PCB ASSEMBLY PWZ2546
POWER TRANSFORMER
PTT1269
AC110V/120-127V 220V/240V 50/60Hz
PWZ2549
VOLTAGE SELECTOR
PSB1002
PTT1246
240V J12 PDF1102
220V J13 PDF1103
120-127V J14 PDF1104
110V J15 PDF1101
SD
PWZ2550
PTT1243
240V J16 PDF1110
220V J17 PDF1108
120-127V J18 PDF1107
110V J19 PDF1109

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE NO. ICP-N10, MFD BY ROHM CO., LTD. FOR IC31.

MAIN, COAXIAL OUTPUT, AUDIO TRANS., SERVO TRANS., FUNCTION, SW AND VOLTAGE SW PCB ASSEMBLIES, AND MECHANISM BOARD AND PICKUP ASSEMBLIES

SCH-1

MAIN PCB ASSEMBLY

IC301
(CXD2500BQ)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	5	41	2.5
2	2.1	42	5
3	5	43	2.5
4	2.6	44	0
5	2.2	45	5
6	5	46	4.4
7	0	47	0
8	5	48	0
9	0	49	0 to 0.3
10	0	50	1.2
11	2.1	51	1.2
12	0	52	0
13	1	53	2.5
14	0.9 to 1.3	54	2.5
15	0	55	0
16	2	56	2.9
17	0	57	2.5
18	2.5	58	2.5
19	2.4	59	5
20	2.4	60	2.5
21	0	61	0
22	2.5	62	2.5
23	5	63	0
24	2.5	64	0
25	0.2	65	0
26	0	66	3.3 to 4.6
27	2.5	67	5
28	0	68	0
29	0	69	2.1 to 3
30	0	70	5
31	1.3 to 2.2	71	0
32	2.5	72	5
33	5	73	5
34	2.5	74	5
35	2.5	75	5
36	2.5	76	0
37	2.5	77	5
38	2.5	78	5
39	0	79	5
40	5	80	0

IC351
(PD4467A)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	5.1	33	4.9
2	-22.5 to -23.5	34	3.5 to 4.5
3	-22.5 to -23.5	35	5
4	-22.5 to -23.5	36	0.1
5	-22.5 to -23.5	37	5
6	-22.5 to -23.5	38	5
7	-22.5 to -23.5	39	0
8	-22.5 to -23.5	40	0
9	-22.5 to -23.5	41	0
10	-22.5 to -23.5	42	0
11	-22.5 to -23.5	43	4.9
12	5	44	4.9
13	5	45	5
14	N.C. (2.6)	46	0
15	-0.9	47	4.9
16	14.3 to 14.8	48	0
17	11.3 to 11.8	49	0.1
18	-26.3	50	5.1
19	-4.9	51	0
20	-7.8 to -8.1	52	5
21	-5.9 to -6.5	53	5
22	-8.3 to -11	54	5
23	-5.2 to -5.5	55	5
24	-3 to -6	56	2.3
25	-5.5 to -8.5	57	2.4
26	5	58	0
27	-19.4 to -19.7	59	0
28	-19.4 to -19.7	60	N.C.
29	-14 to -17	61	0
30	-11 to -14	62	0
31	4.9	63	0
32	4.9	64	0

IC201
(LA6520)

Pin No.	Voltage(V)
1	0
2	0
3	0
4	0.1 to 0.8
5	0.1 to 0.8
6	0.1 to 0.8
7	0
8	0
9	0
10	N.C.
11	N.C.
12	8.9

IC202
(LA6520)

Pin No.	Voltage(V)
1	0.1
2	0.1
3	0.1
4	-0.7 to -1
5	2.3
6	2.3
7	-0.1
8	-0.1
9	-0.1
10	N.C.
11	N.C.
12	8.9

For SCHEMATIC DIAGRAM

Note: (Type 4)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**

2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**

3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance:(F):±1%, (G):±2%, (K):±10%, (M):±20% or ±5% unless otherwise noted.

4. **CAPACITORS:**
   Unit : p:pF or μF unless otherwise noted.
   Ratings : capacitor (μF) / voltage (V) unless otherwise noted.
   Rated voltage : 50V except for electrolytic capacitors.

5. **COILS:**
   Unit : m:mH or μH unless otherwise noted.

6. **VOLTAGE AND CURRENT:**
   ▭ : DC voltage (V) in PLAY mode unless otherwise noted.
   ⇨mA or ←mA: DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.

7. **OTHERS:**
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼(Red) : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. **SWITCHES** (Underline indicates switch position):
   OUT OF P.C.BOARD ASSEMBLY
   S601: CLAMP
   MECHANISM BOARD ASSEMBLY
   S610: INSIDE
   FUNCTION PCB ASSEMBLY
   S701: OUTPUT SELECTOR
   S702: PLAY(▶)
   S703: PAUSE(❚❚)
   S704: OPEN/CLOSE(⏏)
   S705: TRACK/MANUAL SEARCH(▶▶/▶▶❙)
   S706: TRACK/MANUAL SEARCH(❙◀◀/◀◀)
   S707: STOP(■)
   SW PCB ASSEMBLY
   S751: POWER STANDBY ON/OFF
   S752: DISPLAY ON/OFF
   S753: TIME
   S754: REPEAT

9. **For SCH-□ on the schematic diagram**
   •SCH-□ indicates the drawing number of the schematic diagram.
   (SCH stands for schematic diagram.)

For PCB CONNECTION DIAGRAMS

P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

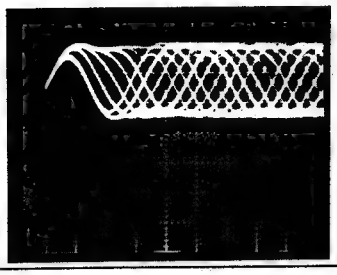
WAVEFORMS

Note: The encircled numbers denote measuring points in the schematic diagram.

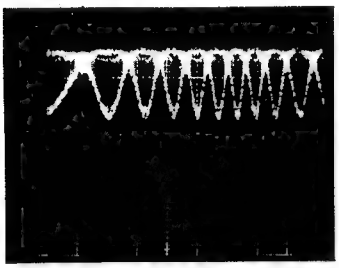
*1 50T-JUMP: After switching to the pause mode, press the manual search key.

*2 FOCUS-IN: Press the key without loading a disc.

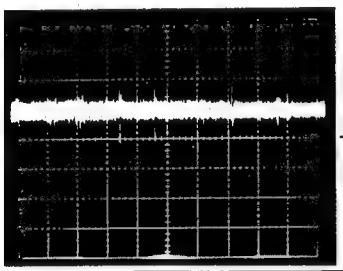
(2) TP1-Pin 1 : PLAY MODE (RF)
500mV/div 500nsec/div



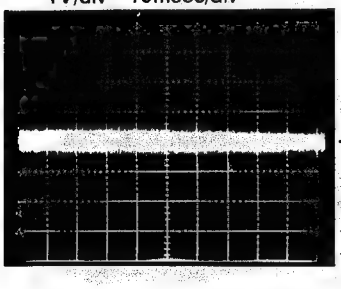
(2) TP1-Pin 1 : TRACK SEARCH MODE (RF)
500mV/div 200 µsec/div



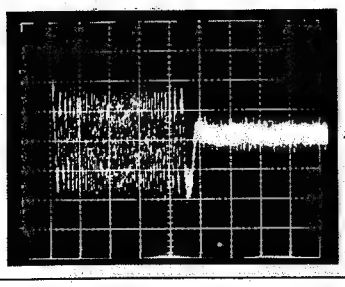
(3) TP1-Pin 6 : PLAY MODE (FOER)
100mV/div 10msec/div



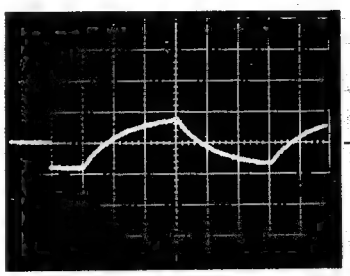
(4) TP1-Pin 2 : PLAY MODE (TRER)
1V/div 10msec/div



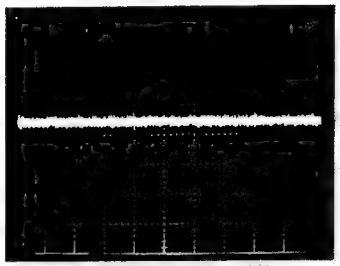
(4) TP1-Pin 2 : 50T-JUMP (*1) MODE (TRER)
1V/div 1msec/div



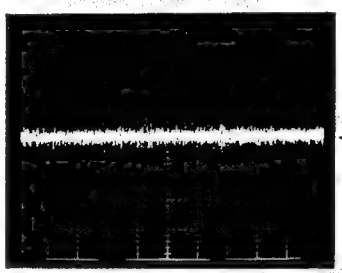
(5) IC202-Pin 9 : FOCUS-IN (*2) MODE (FODR)
1V/div 200msec/div



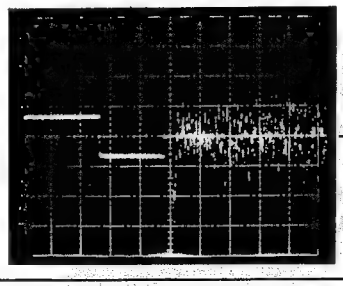
(5) IC202-Pin 9 : PLAY MODE (FODR)
1V/div 1msec/div



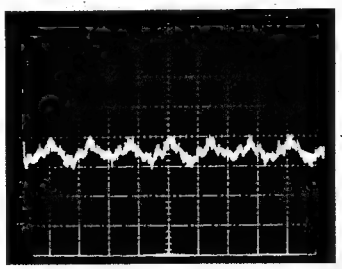
(6) IC202-Pin 3 : PLAY MODE (TRDR)
500mV/div 1msec/div



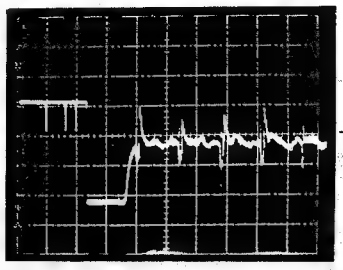
(6) IC202-Pin 3 : 50T-JUMP (*1) MODE (TRDR)
500mV/div 1msec/div



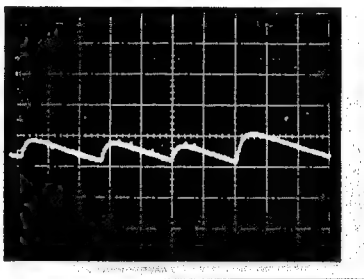
(7) IC202-Pin 4 : PLAY MODE (SPDR)
1V/div 50msec/div



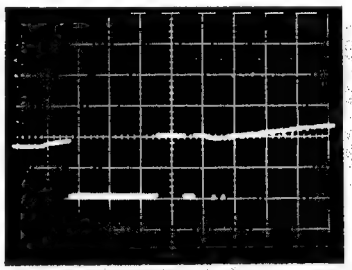
(7) IC202-Pin 4 : TRACK SEARCH MODE (SPDR)
2V/div 50msec/div



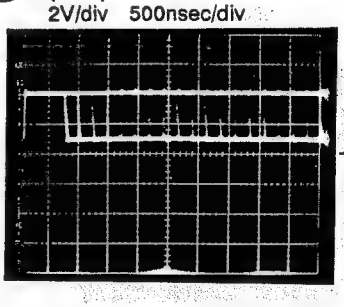
(8) IC201-Pin 4 : PLAY MODE (CADR)
200mV/div 2sec/div



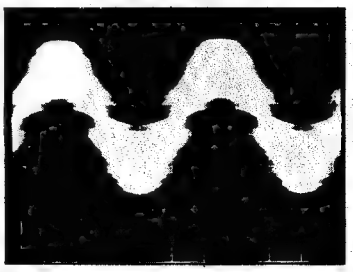
(8) IC201-Pin 4 : TRACK SEARCH MODE (CADR)
2V/div 500msec/div



(9) IC151-Pin 32 : PLAY MODE (EFM)
2V/div 500nsec/div

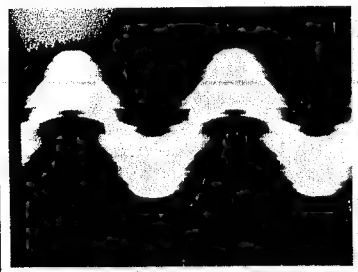


(10) IC832-Pin 12 : PLAY MODE (1kHz) (LO –) (D/A DATA OUT)
1V/div 200 µsec/div

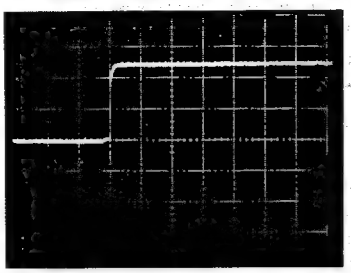


* POWER ON:Plug AC cord into AC wall socket.
* POWER OFF:Unplug AC cord form AC wall socket.

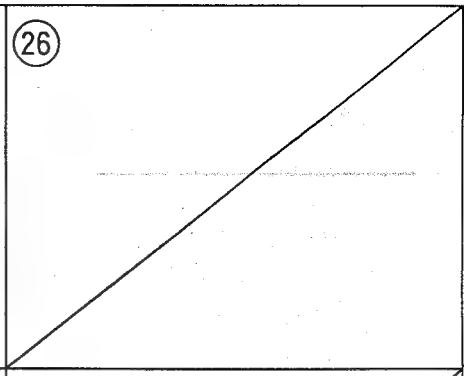
( ) IC32-Pin 13 : PLAY MODE (1kHz)
)+)(D/A DATA OUT)
div 200 μsec/div



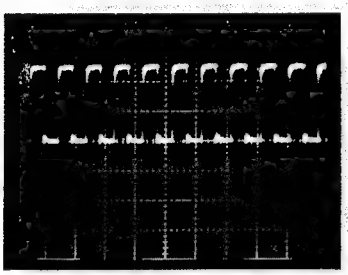
(22) IC351-Pin 1 : POWER ON(*3)
(REST)
2V/div 100msec/div



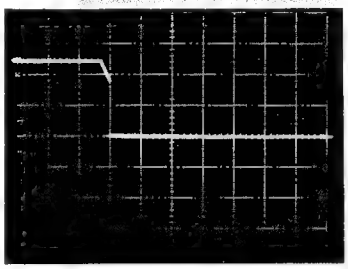
(26)



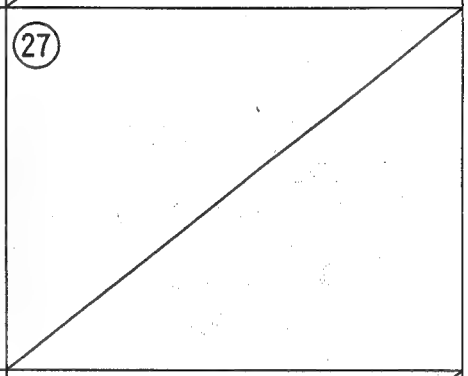
(16) IC301-Pin 35 : PLAY MODE (1kHz)
(BCLK)
2V/div 500nsec/div



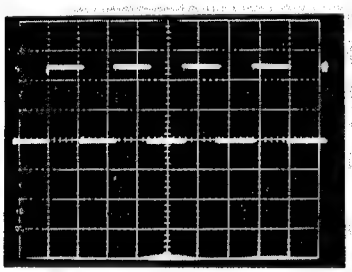
(22) IC351-Pin 1 : POWER OFF(*4)
(REST)
2V/div 100msec/div



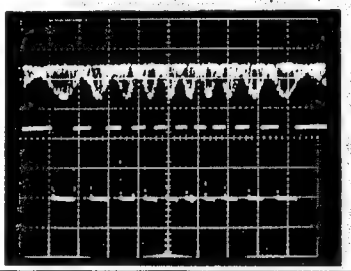
(27)



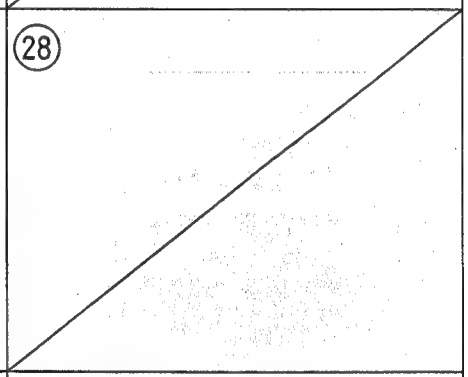
(18) IC301-Pin 32 : PLAY MODE (1kHz)
(LRCK)
2V/div 10 μsec/div



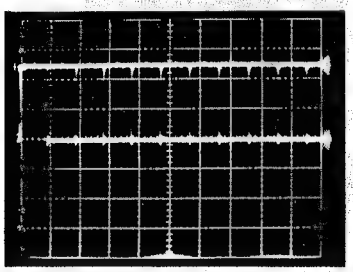
(23) : TRACK SEARCH MODE
Upper : TP1-Pin 1 (RF) 1V/div
Lower : IC151-Pin 29 (MIRR)
2V/div 200 μsec/div



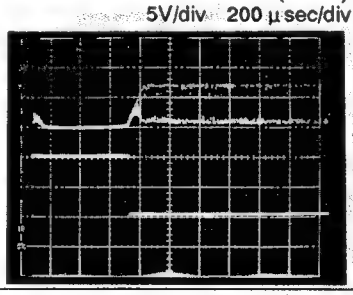
(28)



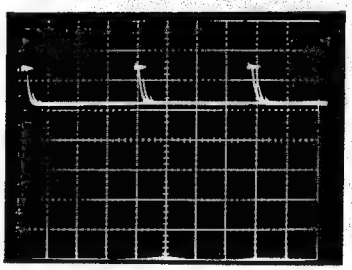
(19) IC301-Pin 34 : PLAY MODE (1kHz)
(DATA)
2V/div 500nsec/div



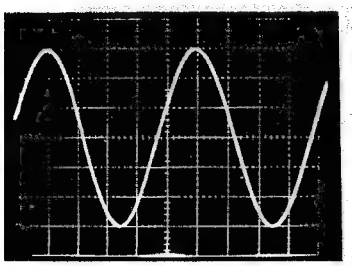
(24) : PLAY MODE
Upper : TP1-Pin 1 (RF) 1V/div
Lower : IC151-Pin 30 (DFCT)
5V/div 200 μsec/div



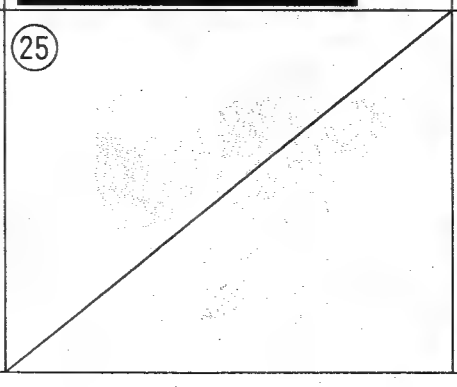
(33) IC301-Pin 4 : PLAY MODE
(MDP)
2V/div 2 μsec/div



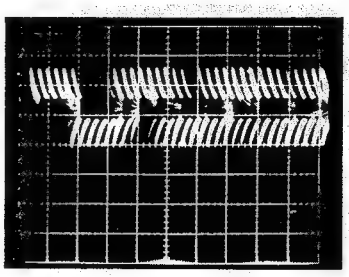
(21) PIN-OUTPUT : PLAY MODE(1kHz)
1V/div 200 μsec/div

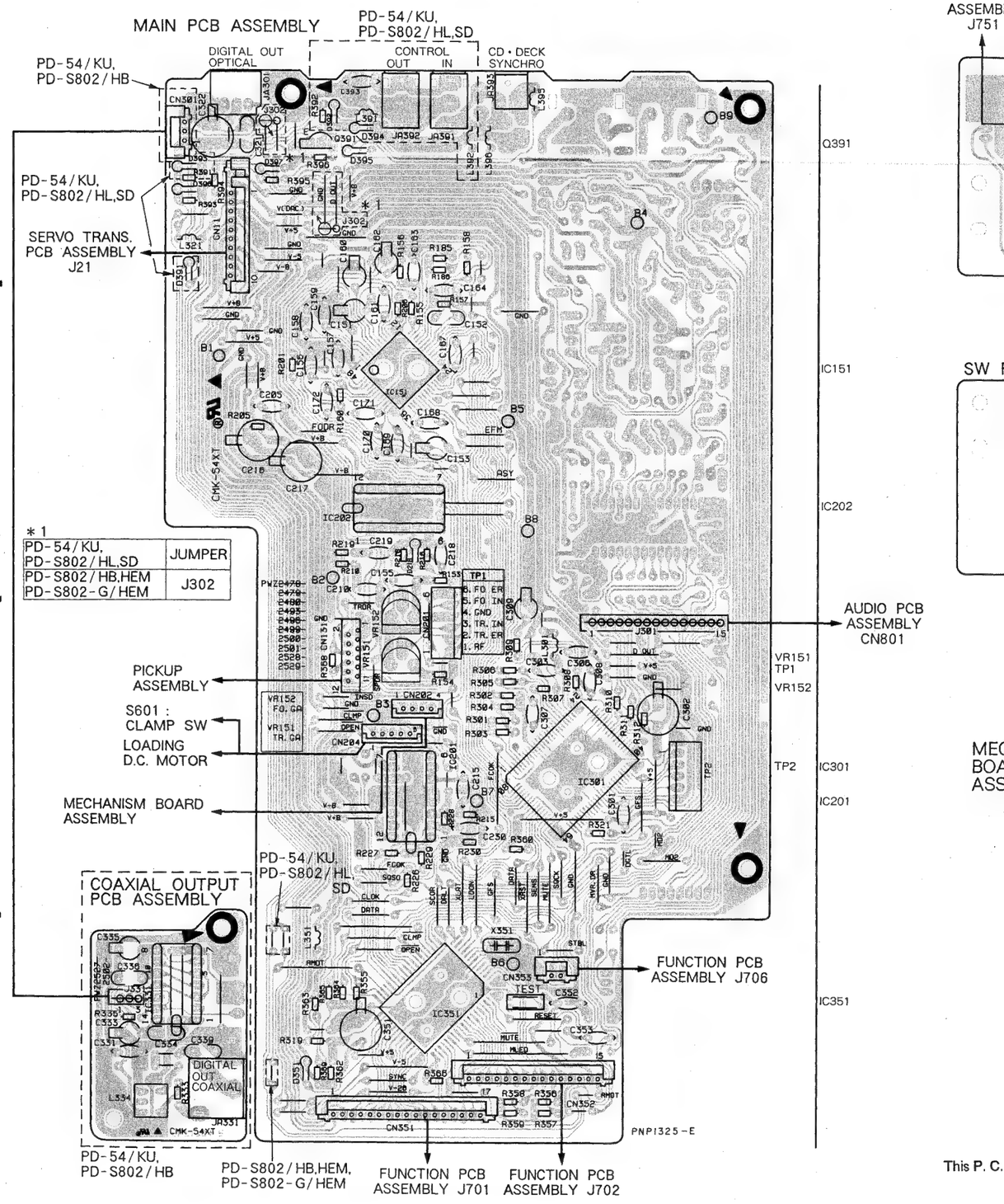


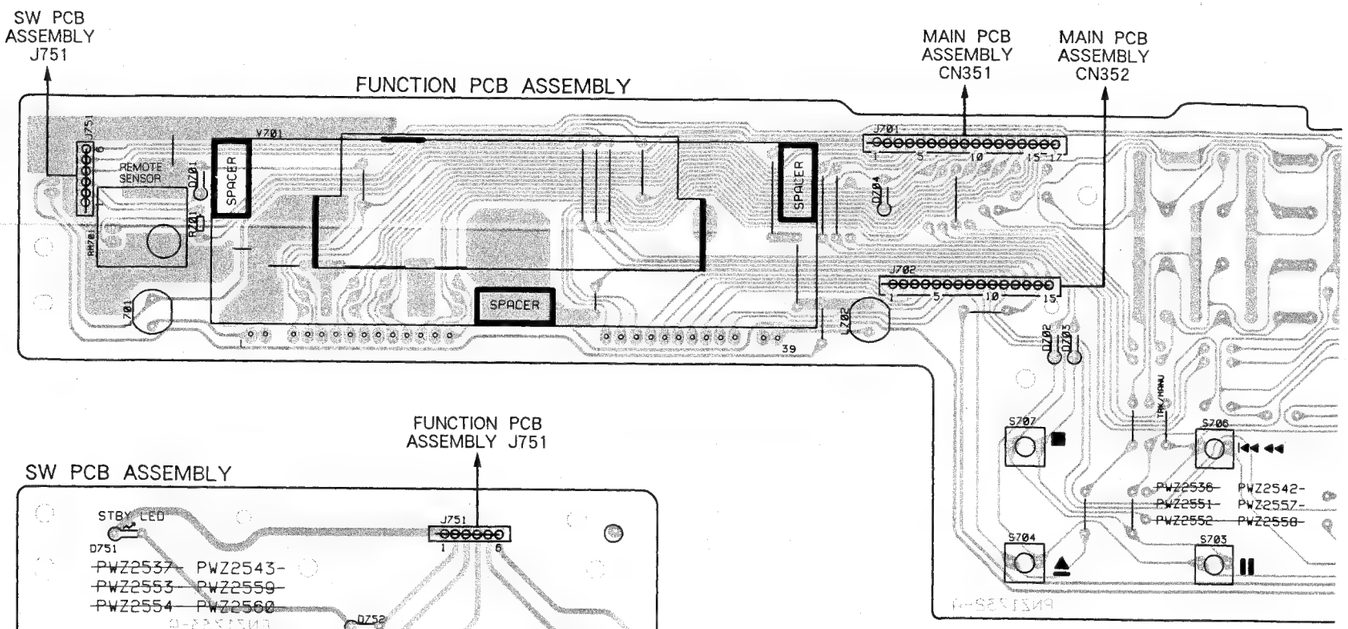
(25)

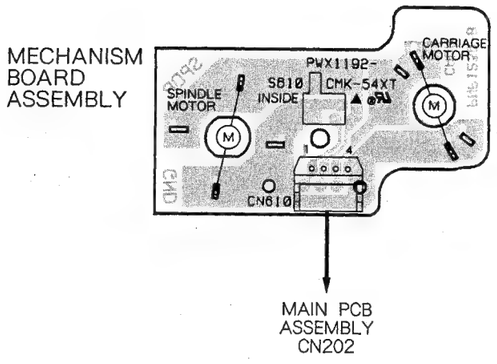


(53) IC301-Pin 20 : PLAY MODE
(PCO)
2V/div 10 μsec/div

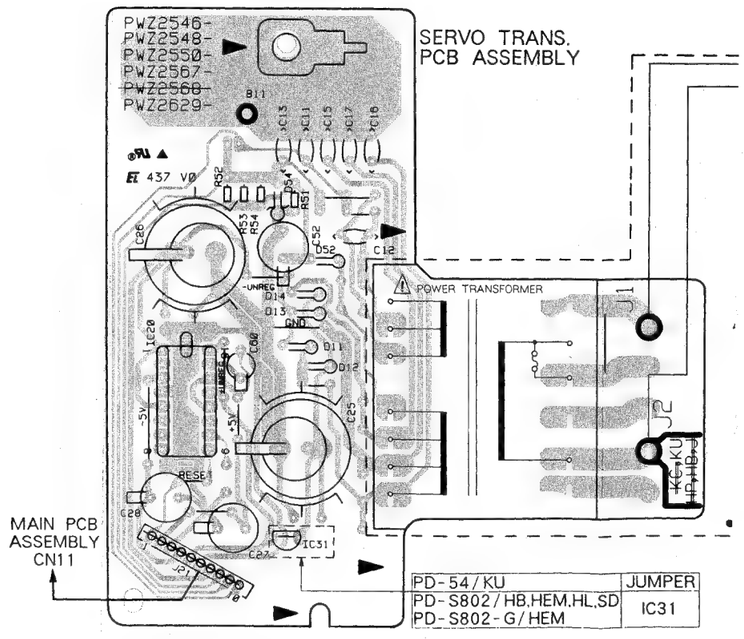


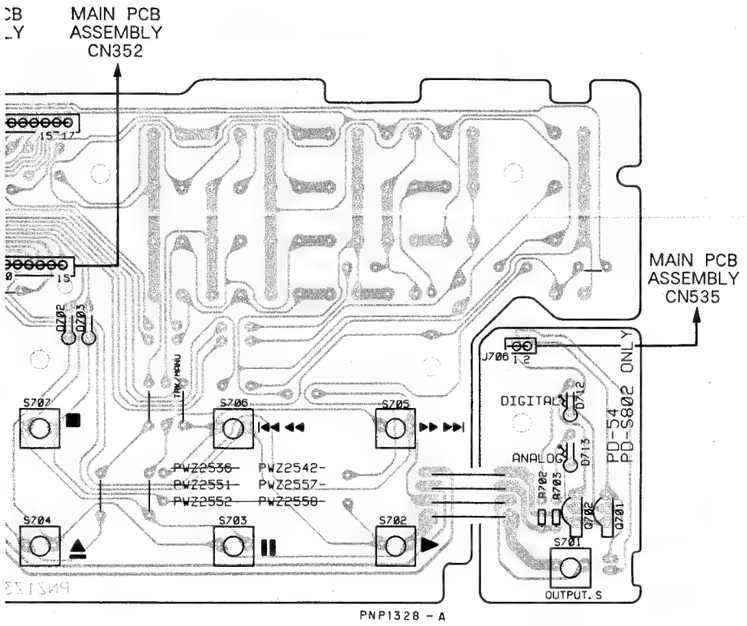






This P. C. B. connection diagram is viewed from the parts mounted side.



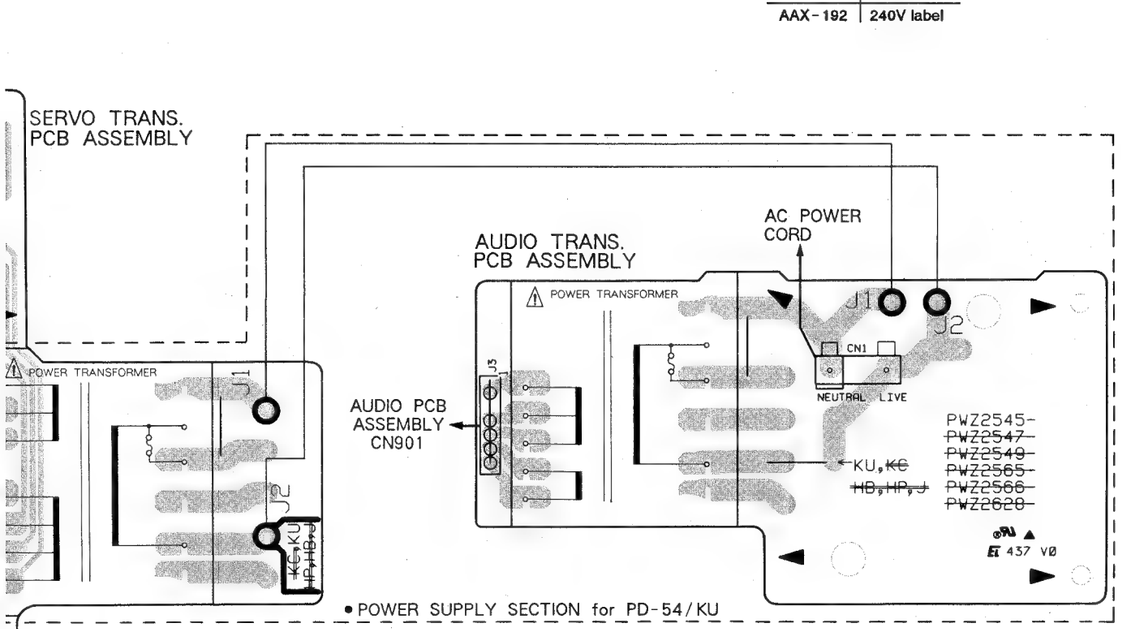


Line voltage selection
Line voltage can be changed as follows.
1. Disconnect the AC power cord.
2. Remove the bonnet.
3. Change the position of the jumper wire Ⓐ as follows.

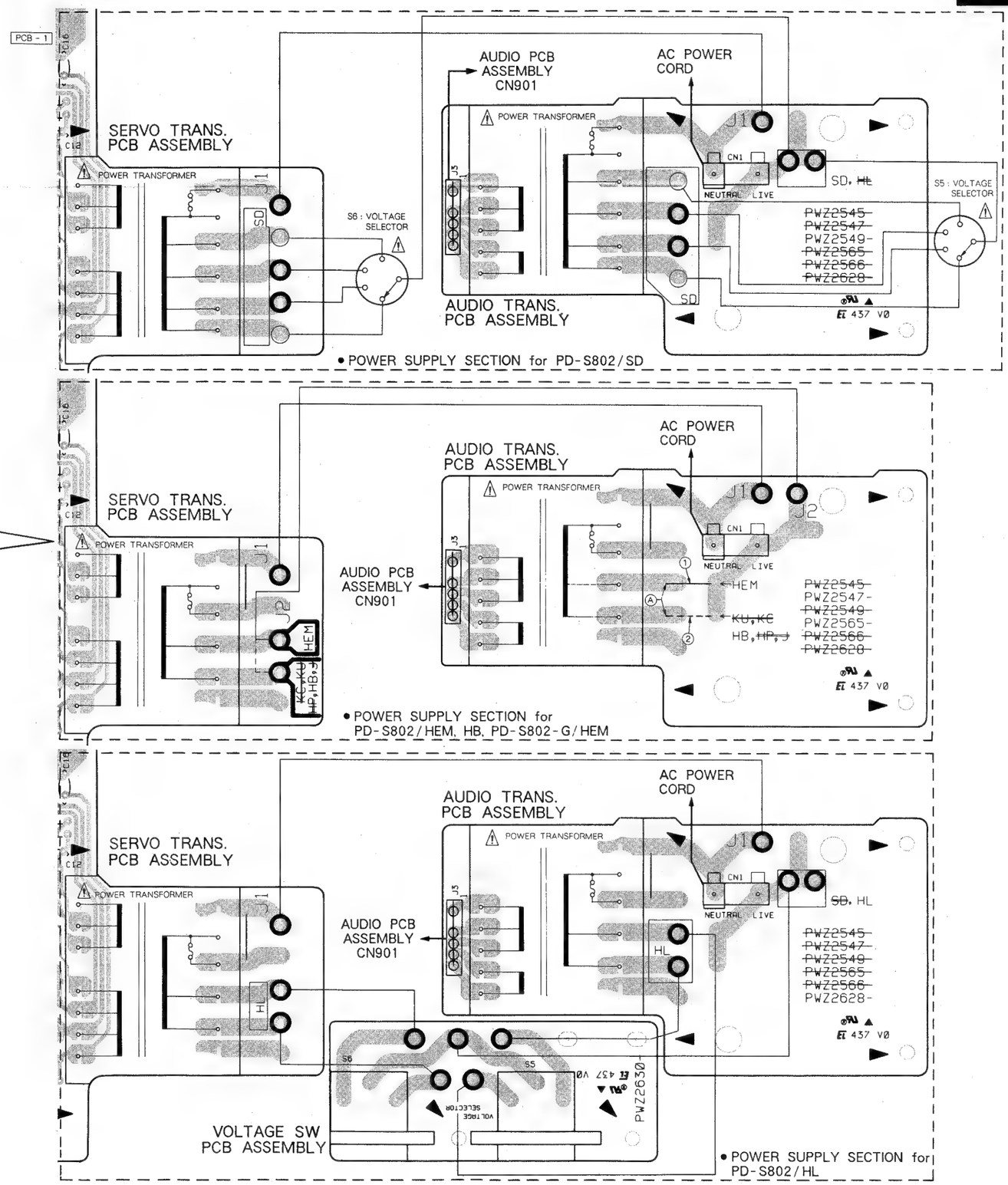
Voltage	Jumper wire Ⓐ position
220-230V	①
230-240V	②

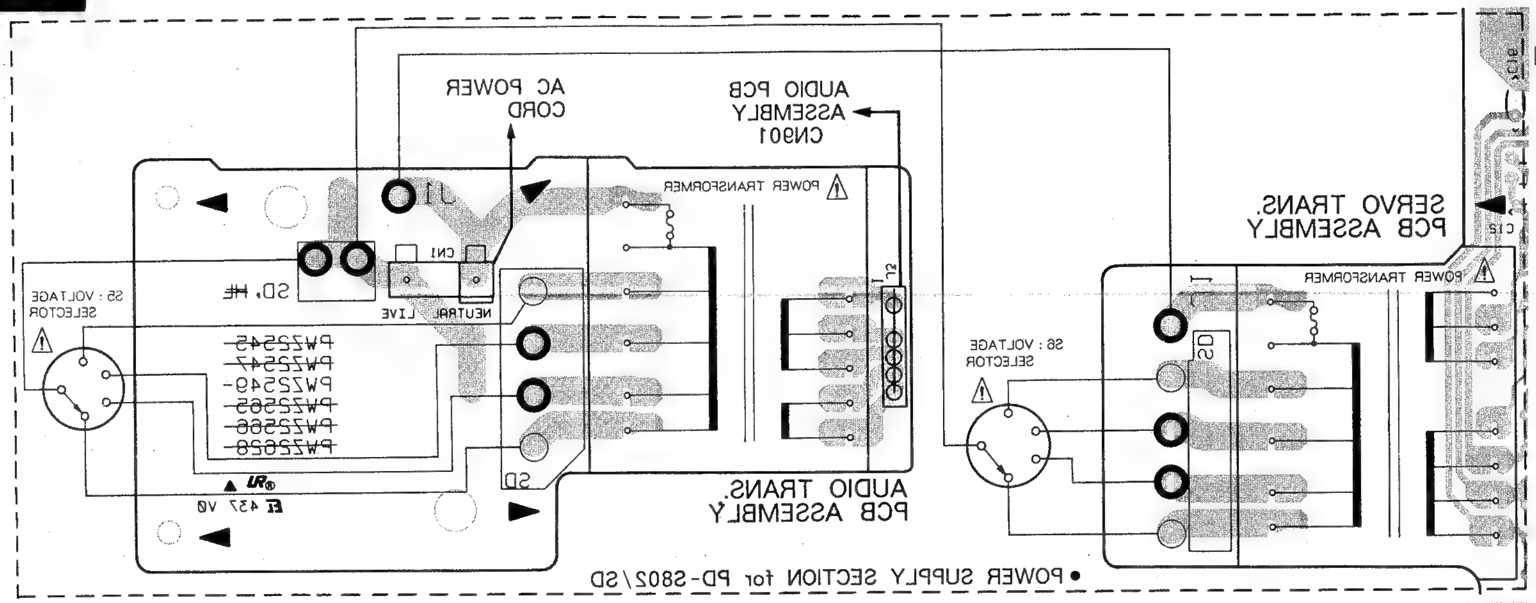
4. Stick the line voltage label on the rear panel.

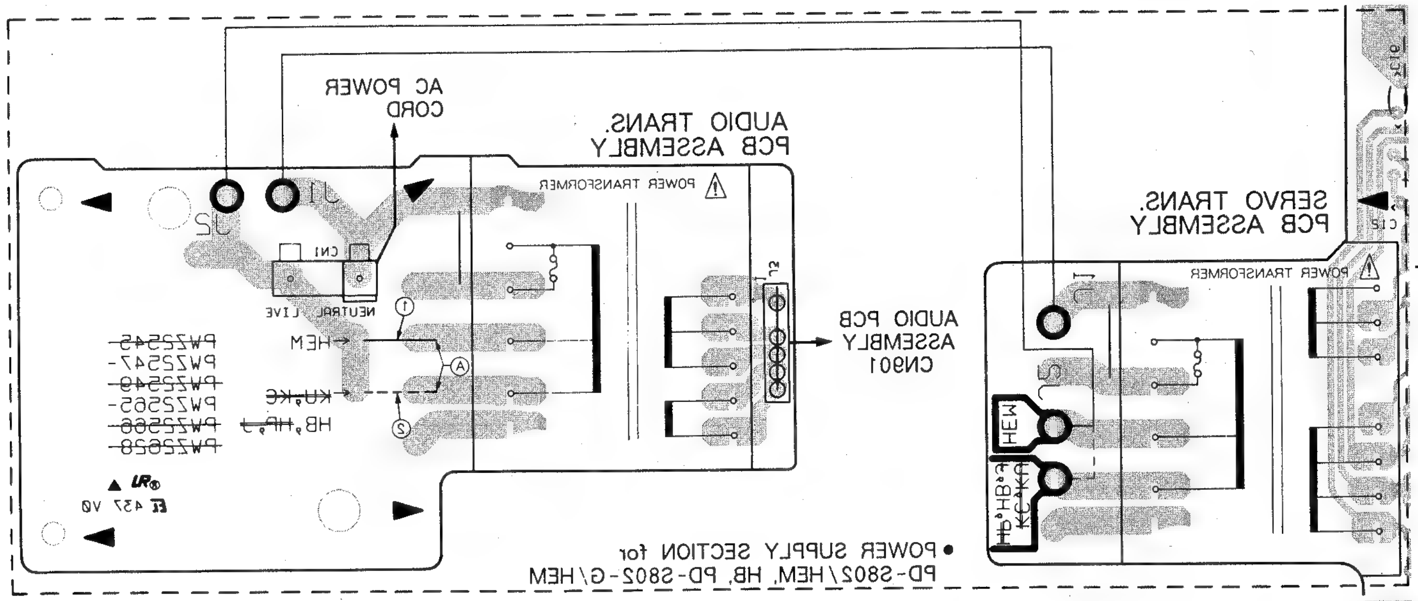
Part No.	Description
AAX-193	220V label
AAX-192	240V label

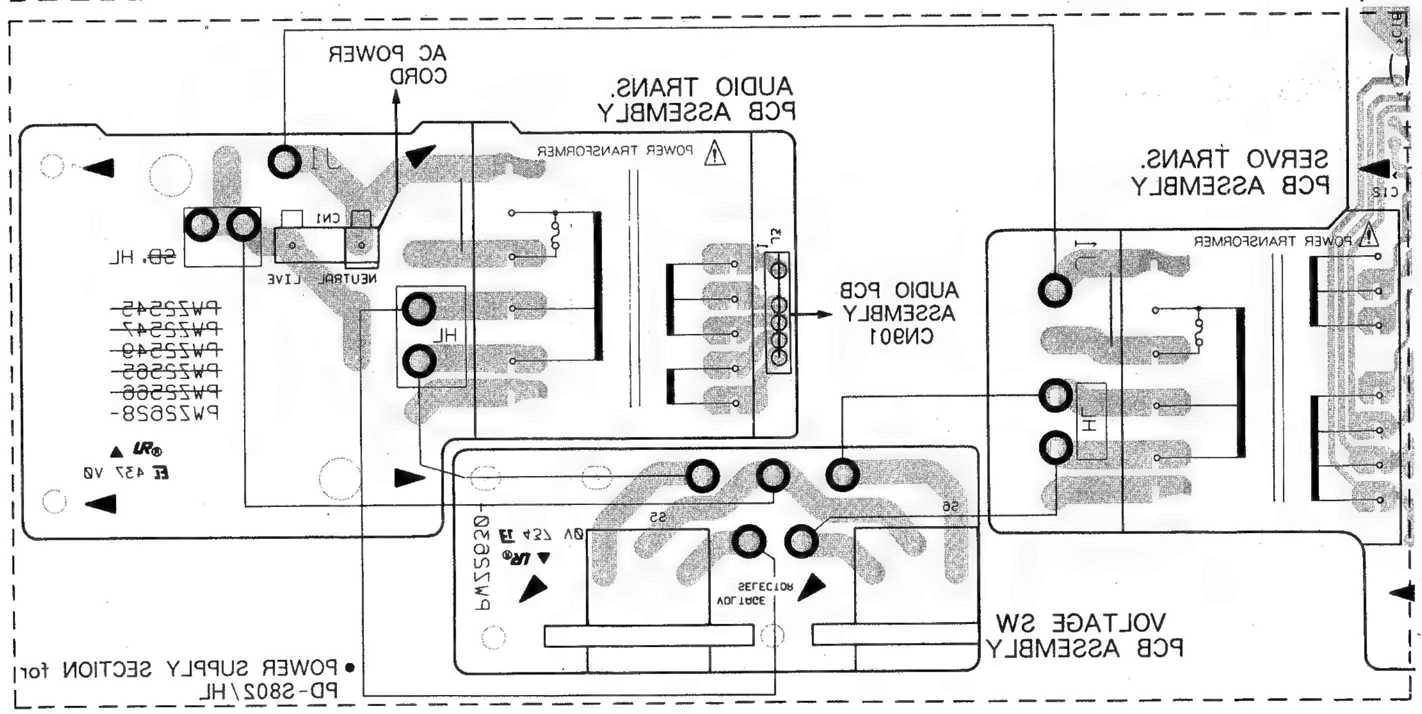


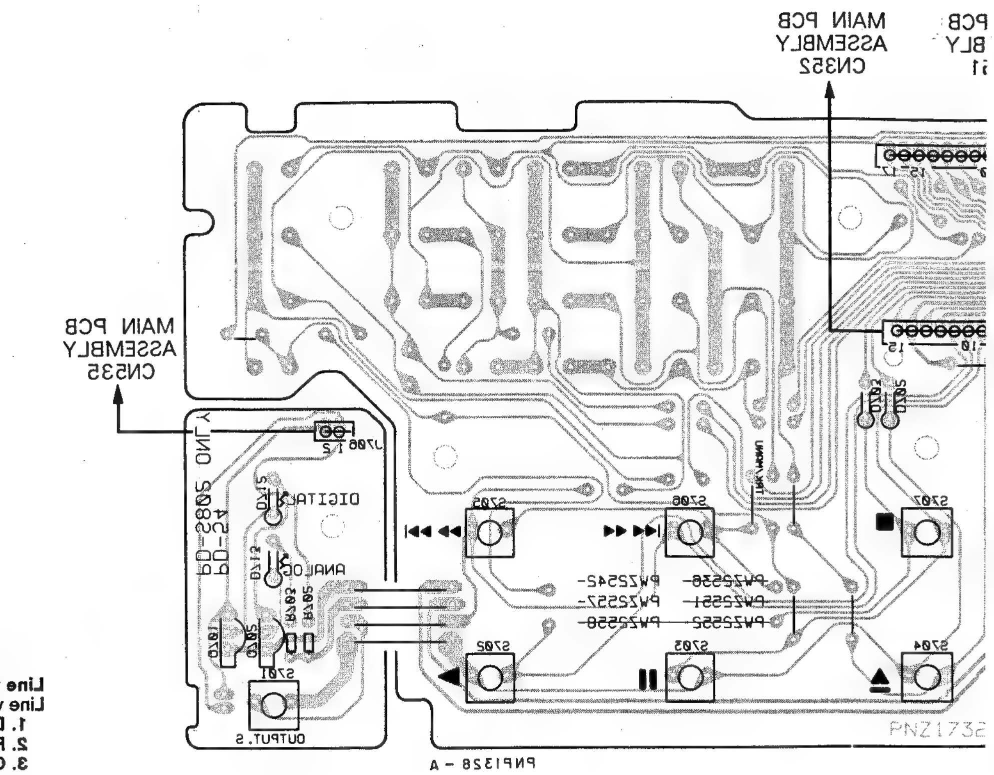
PD-54/KU	JUMPER
PD-S802/HB.HEM.HL.SD PD-S802-G/HEM	IC31











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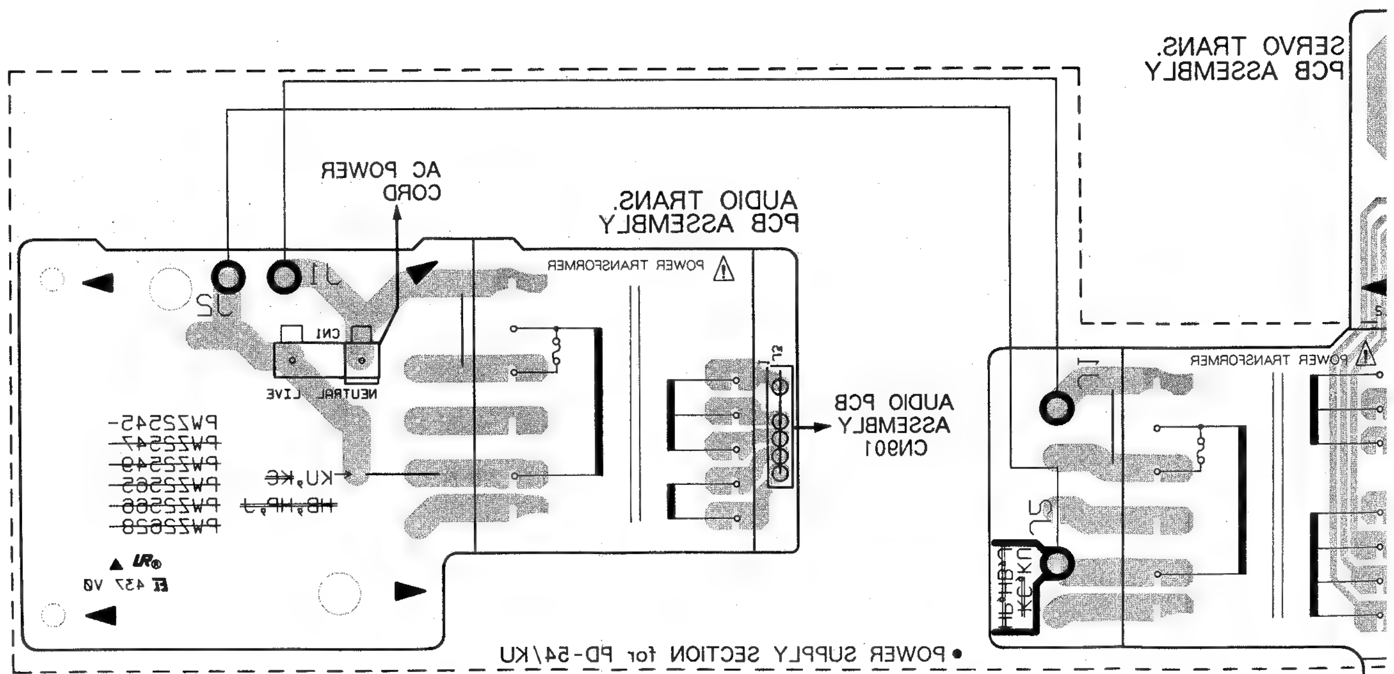
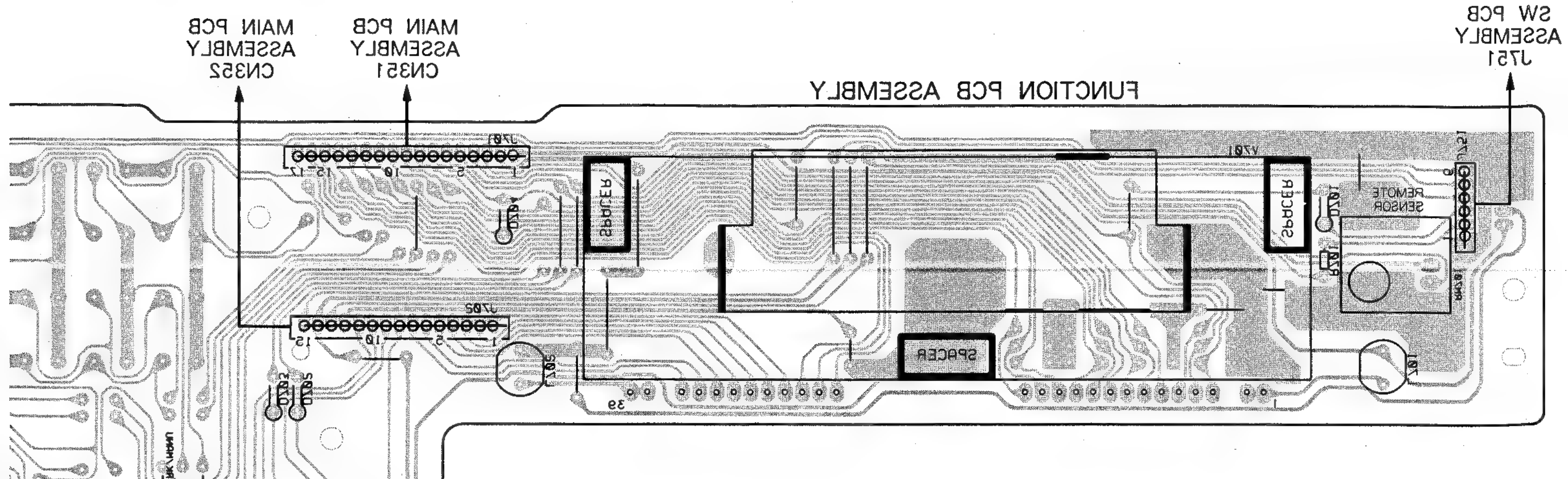
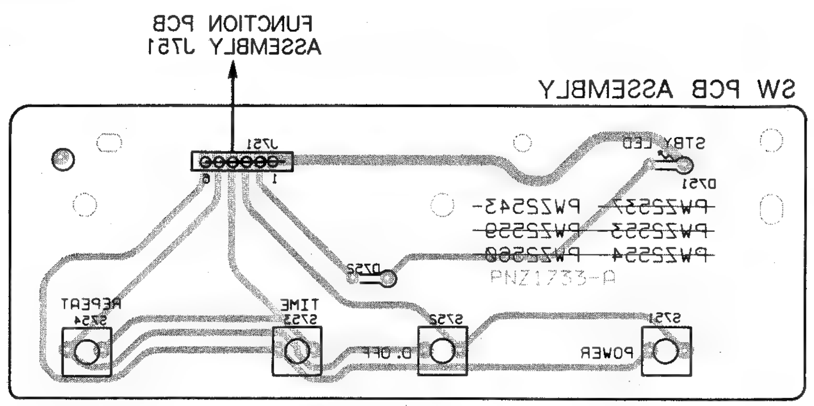
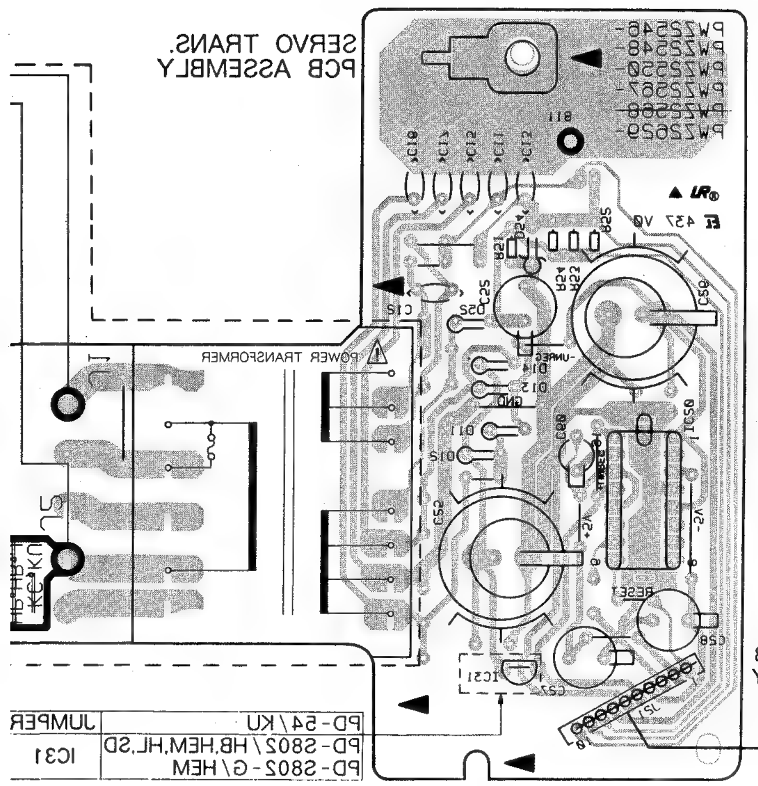
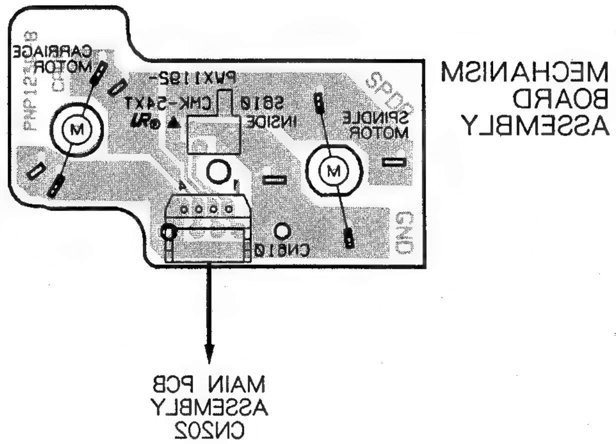


	JUMPER
PD-54/KU	
PD-S802/HB,HEM,HL,SD PD-S802-G/HEM	IC31

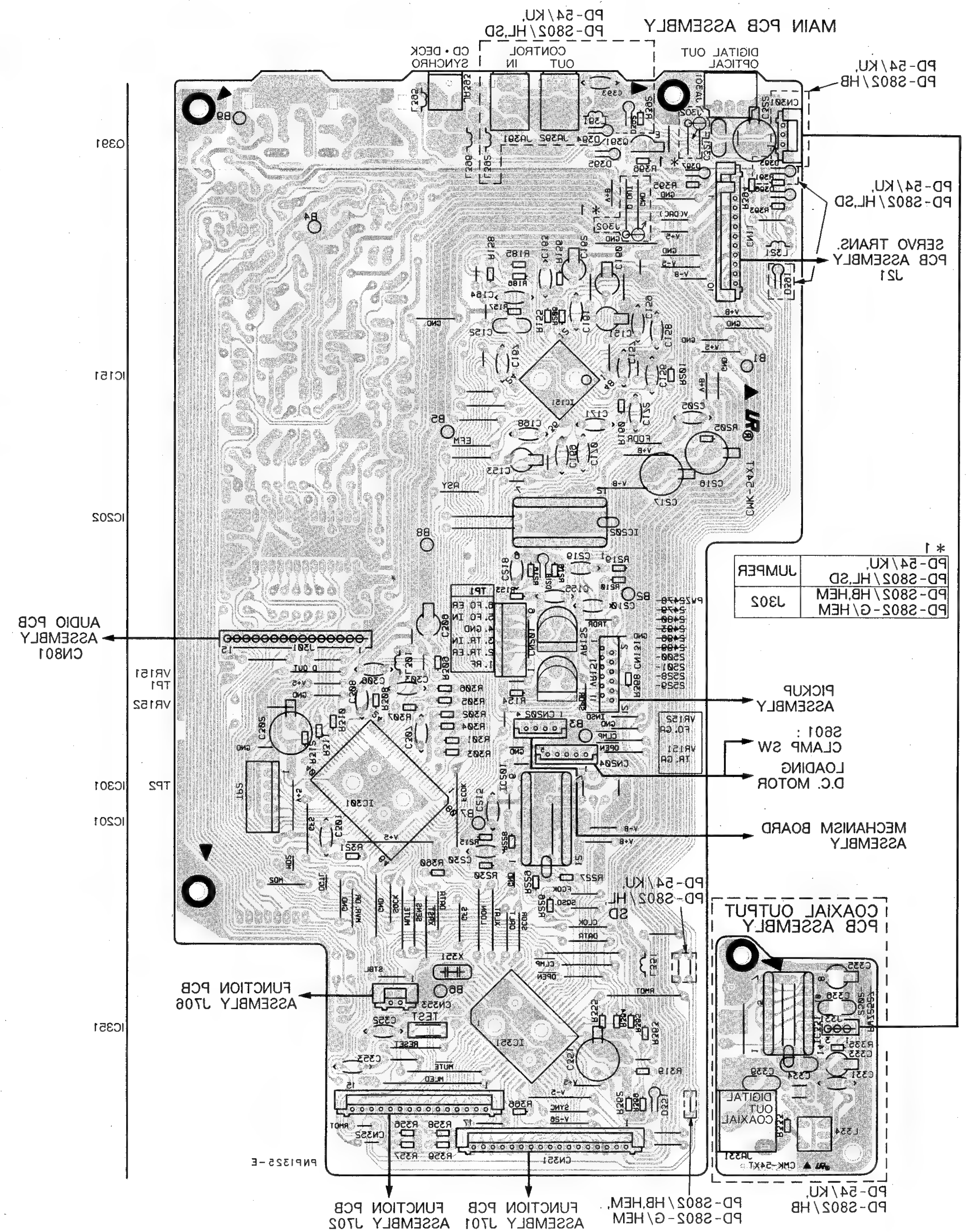








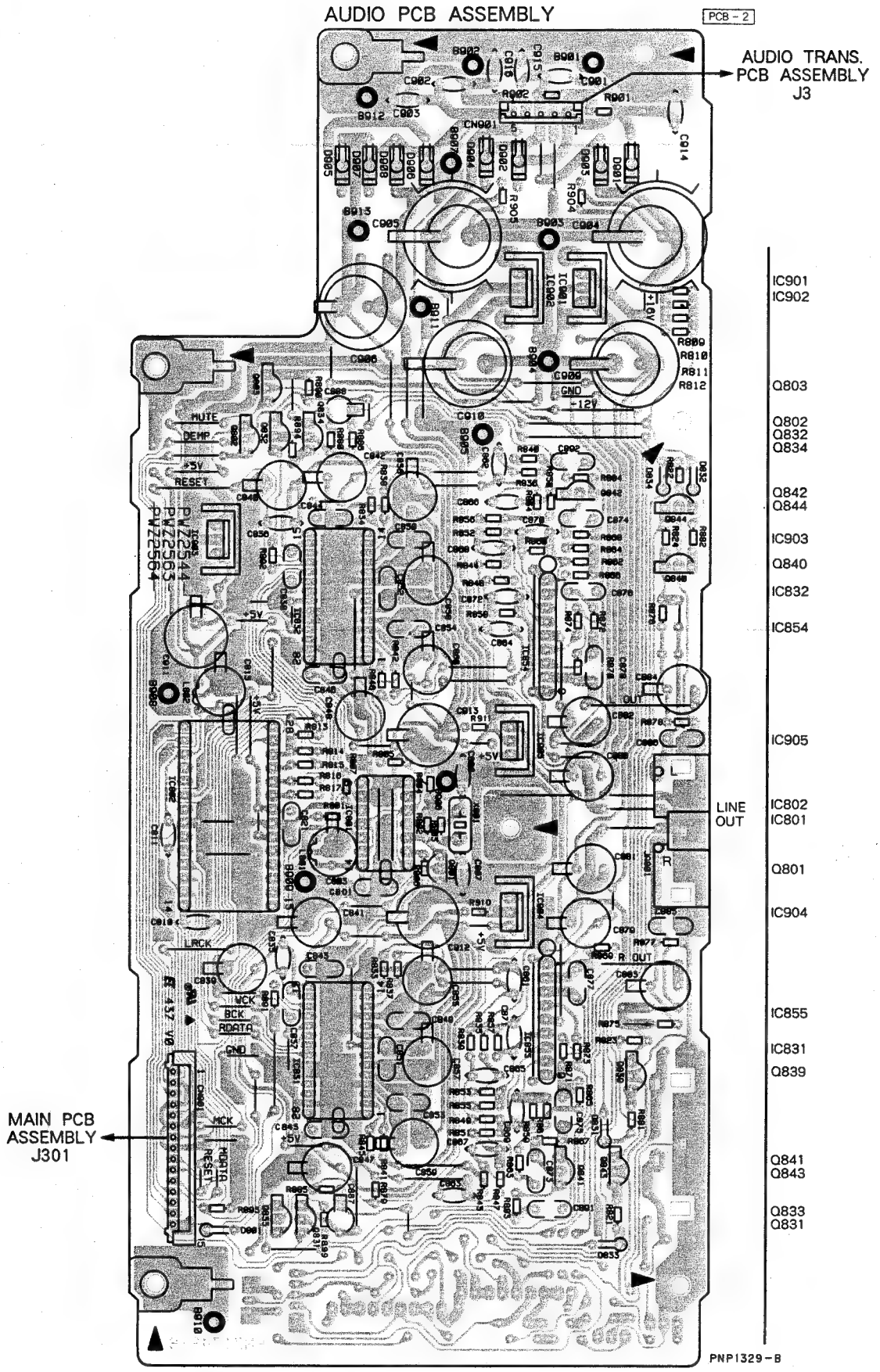
This P. C. B. connection diagram is viewed from the foil side.



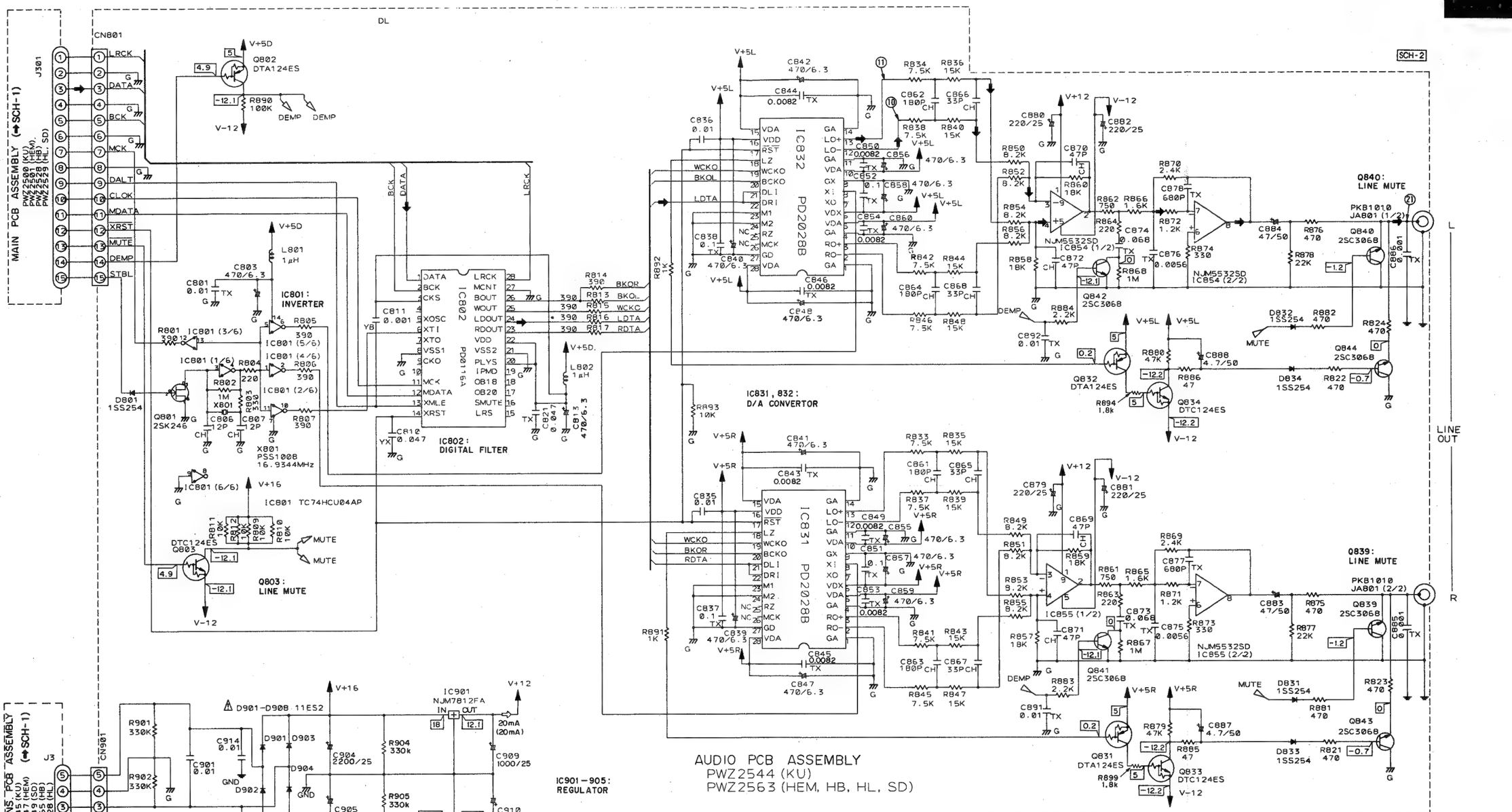
4.2 AUDIO PCB ASSEMBLY

This P. C. B. connection diagram is viewed from the foil side.

4.2 AUDIO PCB ASSEMBLY



This P. C. B. connection diagram is viewed from the parts mounted side.



IC802 (PD0116A)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	2.5	15	N.C. (5)
2	2.4	16	N.C. (5)
3	5	17	N.C. (5)
4	N.C. (5)	18	N.C. (5)
5	N.C. (5)	19	N.C. (5)
6	2.5	20	5
7	N.C. (2.5)	21	0
8	0	22	5
9	N.C. (3)	23	2.1
10	N.C. (5)	24	2.1
11	4.9	25	2.5
12	4.9	26	2.3
13	4.9	27	0
14	4.9	28	2.5

IC831,832 (PD2028B)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	0	15	5.1
2	2.5	16	5.1
3	2.2	17	4.9
4	0	18	0
5	5.1	19	2.5
6	5.1	20	2.2
7	N.C. (2.3)	21	2.3
8	2.4	22	2.3
9	0	23	0
10	5.1	24	0
11	0	25	N.C. (0)
12	2.2	26	N.C. (3.4)
13	2.5	27	0
14	0	28	5.1

IC801 (TC74HCU04AP)

Pin No.	Voltage(V)	Pin No.	Voltage(V)
1	2.3	8	N.C. (4.8)
2	2.4	9	0
3	2.2	10	2.5
4	2.4	11	2.3
5	2.3	12	2.5
6	2.4	13	2.3
7	0	14	4.8

IC854,855 (NJM5532SD)

Pin No.	Voltage(V)
1	12.1
2	0
3	1.3
4	1.3
5	-12.2
6	0
7	0
8	0
9	12.1

5. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP		MOTHER PCB ASSEMBLY	PWM1766
		├ MAIN PCB ASSEMBLY	PWZ2500
		└ COAXIAL OUTPUT PCB ASSEMBLY	PWZ2502
NSP		ANALOG PCB ASSEMBLY	PWM1775
		├ AUDIO PCB ASSEMBLY	PWZ2544
		├ AUDIO TRANS. PCB ASSEMBLY	PWZ2545
		├ SERVO TRANS. PCB ASSEMBLY	PWZ2546
(NSP		└ VOLTAGE SW PCB ASSEMBLY *1)	
NSP		SUB PCB ASSEMBLY	PWX1285
		├ FUNCTION PCB ASSEMBLY	PWZ2542
NSP		└ SW PCB ASSEMBLY	PWZ2543
NSP		LOADING MECHANISM ASSEMBLY TT	PXA1521
NSP		└ SERVO MECHANISM ASSEMBLY TT92	PXA1479
NSP		└ MECHANISM BOARD ASSEMBLY	PWX1192

Note*1 : For PD-S802/HL only. Refer to P40.

MAIN PCB ASSEMBLY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC151		CXA1372Q
	IC301		CXD2500BQ
⚠	IC201, IC202		LA6520
	IC351		PD4467A
	Q391		2SC1740S
	D218, D351, D391-D397		1SS254
COILS			
	L301, L321, L351, L391, L392, L395, L396		LAU010K
CAPACITORS			
	C151, C153		CEAS101M10
	C216, C217		CEAS330M16
	C302, C322, C351		CEAS471M6R3
	C160, C162		CEAS4R7M50
	C309		CEASR47M50
	C152, C161, C321		CFTXA104J50
	C157, C164, C169, C308		CGCYX103K25
	C158, C159, C163, C230, C301		CGCYX104K25
	C156, C168		CGCYX333K25
	C307		CGCYX473K25
	C306		CKCYB152K50
	C155		CKCYB182K50
	C218		CKCYB272K50
	C170		CKCYB332K50
	C171, C172		CKCYB472K50
	C167, C205, C210, C215, C219, C303, C352, C353, C393		CKCYF103Z50
RESISTORS			
	VR151, VR152 (22kΩ)		RCP1046
	Other resistors		RD1/6PM□□□J
OTHERS			
	CN131	FFC CONNECTOR(12P)	12FM-1.0BT
	JA391, JA392	JACK(CONTROL IN OUT)	PKN1004
	JA393	MINI JACK(CD•DECK SYNCHRO)	PKN1005
	JA301	OPTICAL OUTPUT JACK	TOTX178
	X351	CERAMIC RESONATOR (4.19MHz)	VSS1014

COAXIAL OUTPUT PCB ASSEMBLY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC331		MC74HCU04N
RESISTORS			
	All resistors		RD1/6PM□□□J
CAPACITORS			
	C333		CEAS101M25
	C335		CEAS470M25
	C334		CFTXA103J50
	C336, C339		CFTXA104J50
	C331		CKCYF103Z50
COIL			
	L334	PULSE TRANSFORMER	PTL1003
OTHERS			
	JA331	1P PIN JACK (DIGITAL OUT COAXIAL)	RKB1019

AUDIO PCB ASSEMBLY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC854, IC855		NJM5532SD
	IC903-IC905		NJM7805FA
	IC901		NJM7812FA
	IC902		NJM7912FA
	IC802		PD0116A
	IC831, IC832		PD2028B
	IC801		TC74HCU04AP
	Q839-Q844		2SC3068
	Q801		2SK246
	Q802, Q831, Q832		DTA124ES
	Q803, Q833, Q834		DTC124ES
⚠	D901-D908		11ES2
	D801, D831-D834		1SS254
RESISTORS			
	All resistors		RD1/6PM□□□J
CAPACITORS			
	C806, C807		CCCCH120J50
	C861-C864		CCCCH181J50
	C865-C868		CCCCH330J50
	C869-C872		CCCCH470J50
	C911-C913		CEAS102M16
	C904, C905		CEAS222M25
	C879-C882		CEAS221M25
	C906		CEAS472M16
	C883, C884		CEAS470M50
	C909, C910		CEAS102M25
	C803, C813, C839-C842, C847, C848, C855-C860		CEAS471M6R3
	C887, C888		CEAS4R7M50
	C885, C886		CFTXA102J50
	C801, C891, C892		CFTXA103J50
	C837, C838, C851, C852		CFTXA104J50
	C821		CFTXA473J50
	C875, C876		CFTXA562J50
	C877, C878		CFTXA681J50
	C873, C874		CFTXA683J50
	C843-C846, C849, C850, C853, C854		CFTXA822J50
	C810		CGCYX473K25
	C811		CKCYB102K50
	C835, C836, C901-C903, C914-C916		CKCYF103Z50
COILS			
	L801, L802		LAU010K
OTHERS			
	JA801	2P PIN JACK(LINE OUT L, R)	PKB1010
	X801	CRYSTAL RESONATOR (16.9344MHz)	PSS1008

AUDIO TRANS. PCB ASSEMBLY

Mark	No.	Description	Part No.
OTHERS			
⚠	TERMINAL		RKC-061

SERVO TRANS. PCB ASSEMBLY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
⚠	IC20		M5298P
⚠	D11-D14, D52		11ES2
	D54		MTZJ18B
RESISTORS			
	All resistors		RD1/6PM□□□J
CAPACITORS			
	C60		CEAS010M50
	C52		CEAS101M35
	C27, C28		CEAS471M6R3
	C25, C26		CEAS472M16
	C11-C13, C15-C17		CKCYF103Z50

FUCTION PCB ASSEMBLY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	Q701, Q702		DTC124ES
	D701-D704		1SS254
	D713		PCX1019
	D712		PCX1023
SWITCHES			
	S701-S707		PSG1006
COILS			
	L701, L702		LFA010K
RESISTORS			
	All resistors		RD1/6PM□□□J
OTHERS			
	V701	FLUORECENT DISPLAY	PEL1057
	REMOTE SENSOR		SBX1610-51

SW PCB ASSEMBLY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	D751		PCX1019
	D752		1SS254
SWITCHES			
	S751-S754		PSG1006

MECHANISM BOARD ASSEMBLY

Mark	No.	Description	Part No.
SWITCH			
	S610		DSG1016

6. ADJUSTMENTS

● Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 − 4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin 6 (FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin 2 (TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin 1 (RF)	None
5	Focus servo loop gain adjustment	TP1, Pin 5 (FCS. IN) TP1, Pin 6 (FCS. ERR)	VR152 (FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin 3 (TRK. IN) TP1, Pin 2 (TRK. ERR)	VR151 (TRK. GAN)

● **Abbreviation table**

FCS. ERR :Focus Error
TRK. ERR :Tracking Error
FCS GAN :Focus Gain
TRK GAN :Tracking Gain
FCS. IN :Focus In
TRK. IN :Tracking In

● Measuring Instruments and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. Low pass filter (39kΩ +0.001 μF)
5. Resistor (100 kΩ)
6. Standard tools

● Test Point and Adjustment Variable Resistor Positions

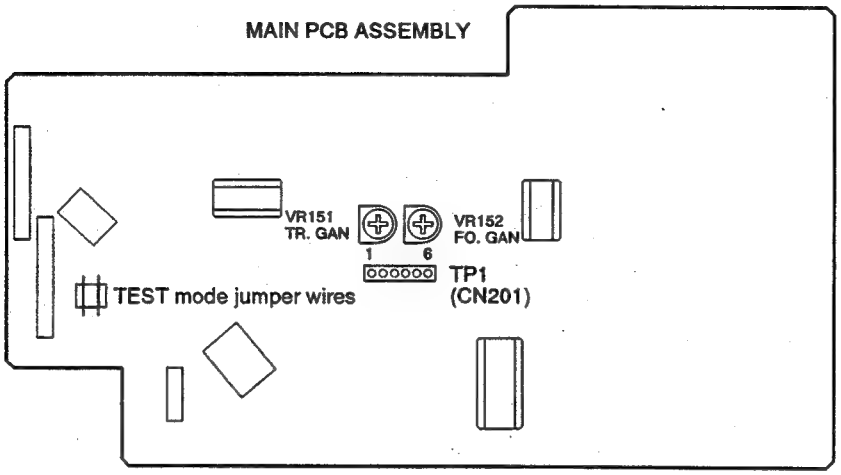


Figure 1. Adjustment Locations

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.
1. Unplug the AC power cord from the AC socket.
2. Short the test mode jumper wires. (See Figure 1.)
3. Plug the AC power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Turn off the power switch on the front panel.

[Operations of the keys in test mode]

Code	Key Name	Function in Test Mode	Explanation
	PGM (PROGRAM)	Focus servo close	The laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled up, then the actuator is lowered and raised three times and returned to its original position.
▷	PLAY	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
▯▯	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function in Test Mode	Explanation
⏮ ◁◁	TRACK / MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
▷▷ ⏭	TRACK / MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
□	STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed.
⏏	OPEN/CLOSE	Disc tray open/close	Open/close the disc tray. This key is a toggle key and open/close tray alternately. Pressing this key when the disc is turning stops the disc, then opens the tray. This key operation does not affect the position of the pickup.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

PGM(PROGRAM)	Lights up the laser diode and closes the focus servo.
⇩	
PLAY ▷	Starts the spindle motor and closes the spindle servo.
⇩	
PAUSE ▯▯	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus Offset Verification

● Objective ● Symptom when out of adjustment	Verify the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR) [Settings] 5 mV/division 10 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stopped (just the Power switch on) None None needed

[Procedure]

Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is 0 ± 50 mV.

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 – 4, the pickup block may be defective.

2. Tracking Error Balance Verification

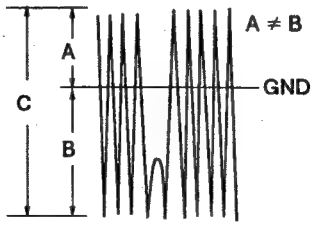
● Objective ● Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open None YEDS-7

[Procedure]

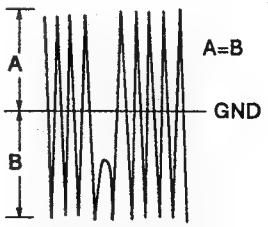
1. Move the pickup to midway across the disc (R=35 mm) with the TRACK/MANUAL SEARCH FWD ▷▷ ▷▷| or REV |◁◁ ◁◁ key.
2. Press the PGM (PROGRAM) key, then the PLAY ▷ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

When $A \geqq B$, $\frac{A-B}{C} \times \frac{1}{2} \leqq 0.1$

When $A < B$, $\frac{B-A}{C} \times \frac{1}{2} \leqq 0.1$



When there is a DC component



When there is no DC component

3. Pickup Radial/Tangential Direction Tilt Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken;some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw YEDS-7

[Procedure]

1. Press the TRACK/MANUAL SEARCH FWD ▷▷ ▷▷| or REV |◁◁ ◁◁ key to move the pickup to halfway across the disc (R=35mm).
   Press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 3).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.
   Note:Radial and tangential mean the directions relative to the disc shown in Figure 2.

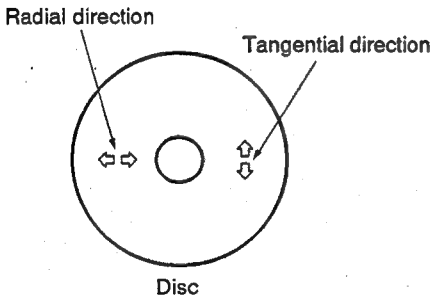
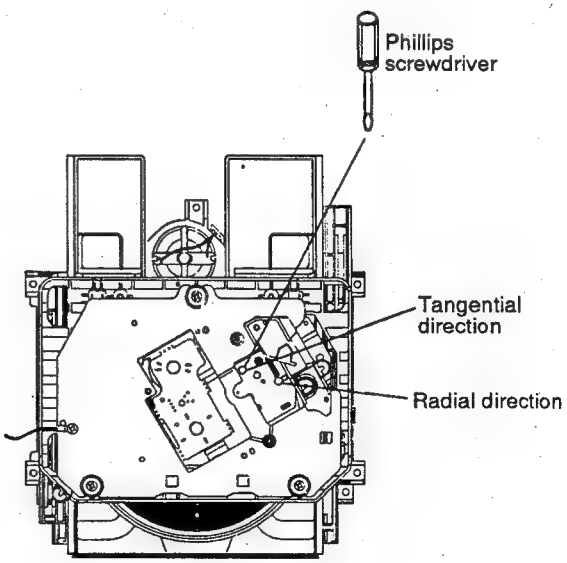


Figure 2



Adjustment locations

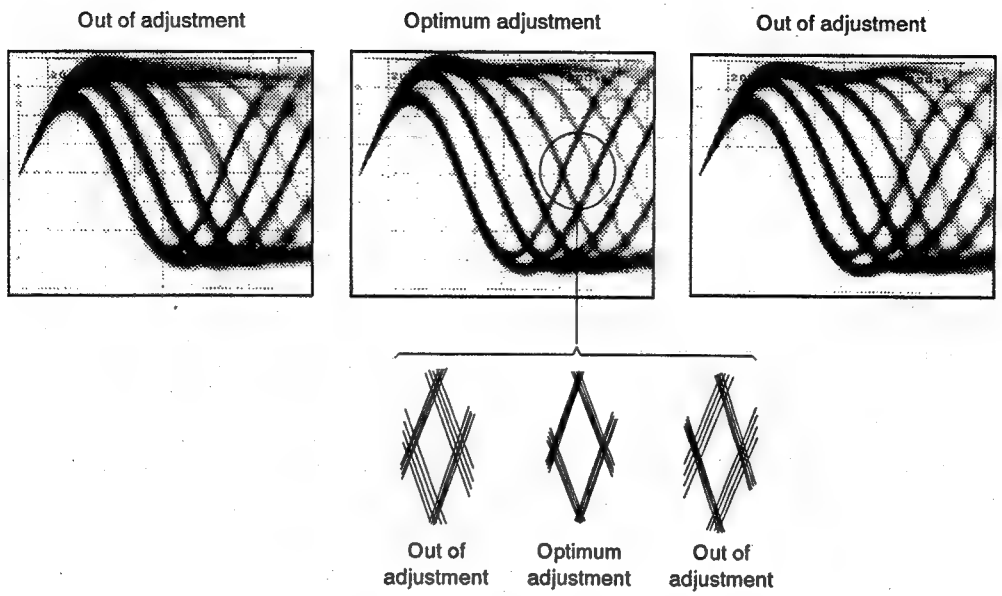


Figure 3. Eye pattern

4. RF Level Verification

● Objective ● Symptom when out of adjustment	To verify the playback RF signal amplitude No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play None YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the TRACK/MANUAL SEARCH FWD ▷▷ ▷▷| or REV |◁◁ ◁◁ key, then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the respective servos and put the player into play mode.
2. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.

5. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See figure 4. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR152 (FCS. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK / MANUAL SEARCH FWD ▷▷ ▷▷| or REV |◁◁ ◁◁ key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

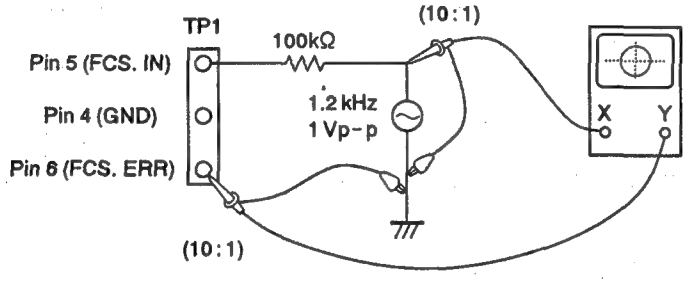
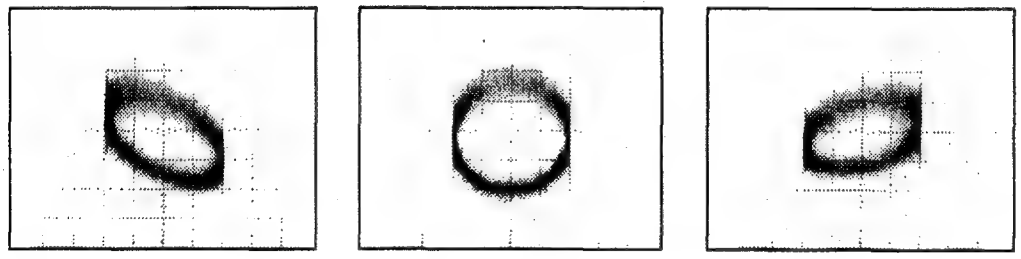


Figure 4

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

6. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 5. [Settings] CH1 CH2 50 mV/division 20 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR151 (TRK. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▷▷ ▷▷| or REV |◁◁ ◁◁ key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

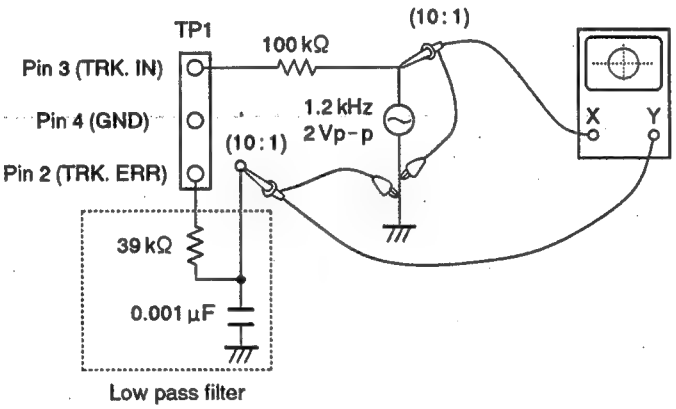
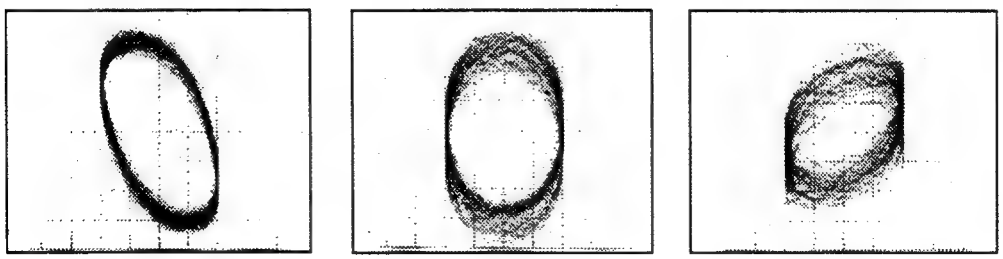


Figure 5

Tracking Gain Adjustment



Higher gain | Optimum gain | Lower gain

7. FOR PD–S802/HB, HEM, HL, SD AND PD–S802–G/HEM

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

CONTRAST OF MISCELLANEOUS PARTS

PD-S802/HB, HEM, HL, SD, PD-S802-G/HEM and PD-54/KU have the same construction except for the following :

Mark	Symbol & Description	Part No.						Remarks
		PD-54 /KU	PD-S802 /HB	PD-S802 /HEM	PD-S802 /HL	PD-S802 /SD	PD-S802 -G/HEM	
NSP	MOTHER PCB assembly	PWM1766	PWM1768	PWM1767	PWM1764	PWM1764	PWM1767	
	MAIN PCB assembly	PWZ2500	PWZ2528	PWZ2501	PWZ2529	PWZ2529	PWZ2501	
	COAXIAL OUTPUT PCB assembly	PWZ2502	PWZ2502	• • • • •	• • • • •	• • • • •	• • • • •	
NSP	ANALOG PCB assembly	PWM1775	PWM1778	PWM1776	PWM1809	PWM1777	PWM1776	
	AUDIO PCB assembly	PWZ2544	PWZ2563	PWZ2563	PWZ2563	PWZ2563	PWZ2563	
	AUDIO TRANS. PCB assembly	PWZ2545	PWZ2565	PWZ2547	PWZ2628	PWZ2549	PWZ2547	
	SERVO TRANS. PCB assembly	PWZ2546	PWZ2567	PWZ2548	PWZ2629	PWZ2550	PWZ2548	
NSP	VOLTAGE SW PCB assembly	• • • • •	• • • • •	• • • • •	PWZ2630	• • • • •	• • • • •	Refer to P5.
NSP	SUB PCB assembly	PWX1285	PWX1287	PWX1287	PWX1287	PWX1287	PWX1287	
	FUNCTION PCBassembly	PWZ2542	PWZ2557	PWZ2557	PWZ2557	PWZ2557	PWZ2557	
⚠	Cord stopper	CM-22C	CM-22B	CM-22B	CM-22B	CM-22B	CM-22B	
⚠	AC power cord	PDG1015	• • • • •	PDG1003	PDG1003	PDG1013	PDG1003	
⚠	AC power cord HB	• • • • •	VDG1051	• • • • •	• • • • •	• • • • •	• • • • •	Refer to P5.
⚠	Fuse (FU1 : T13A)	• • • • •	VEK1003	• • • • •	• • • • •	• • • • •	• • • • •	Refer to P5.
	Fuse holder	• • • • •	VKR1002	• • • • •	• • • • •	• • • • •	• • • • •	Refer to P5.
⚠	Power transformer (10W)(AC120V)	PTT1269	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
⚠	Power transformer (11W) (AC220-230V/230-240V)	• • • • •	PTT1242	PTT1242	PTT1242	• • • • •	PTT1242	
⚠	Power transformer (11W) (AC110V/120-127V/220V/240V)	• • • • •	• • • • •	• • • • •	• • • • •	PTT1243	• • • • •	
⚠	Power transformer (8W)(AC120V)	PTT1270	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
⚠	Power transformer (AC220-230V/230-240V)	• • • • •	PTT1245	PTT1245	PTT1245	• • • • •	PTT1245	
⚠	Power transformer (AC110V/120-127V/220V/240V)	• • • • •	• • • • •	• • • • •	• • • • •	PTT1246	• • • • •	
⚠	Voltage selector (S5, S6) (AC110V/120-127V/220V/240V)	• • • • •	• • • • •	• • • • •	• • • • •	PSB1002	• • • • •	Refer to P5.
	Output button	PAC1661	PAC1661	PAC1661	PAC1661	PAC1661	• • • • •	
	Output button G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PAC1677	
	Power button 78	PAC1743	PAC1743	PAC1743	PAC1743	PAC1743	• • • • •	
	Power button 78G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PAC1750	
	Function button 78	PAC1744	PAC1744	PAC1744	PAC1744	PAC1744	• • • • •	
	Function button 78 G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PAC1751	
	Display window	PAM1622	PAM1609	PAM1609	PAM1622	PAM1622	PAM1609	
	Front panel 54	PAN1286	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Front panel 8	• • • • •	PAN1281	PAN1281	PAN1281	PAN1281	• • • • •	
	Front panel 8G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PAN1289	
NSP	Opt. angle	• • • • •	• • • • •	• • • • •	PNB1190	• • • • •	• • • • •	Refer to P5.
	Screw	PBA1071	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Side spacer	PEB1247	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Bonnet	PYY1148	PYY1175	PYY1175	PYY1175	PYY1175	PYY1176	
NSP	Rear base 54	PNA2015	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
NSP	Rear base B8	• • • • •	PNA2022	• • • • •	• • • • •	• • • • •	• • • • •	

Mark	Symbol & Description	Part No.						Remarks
		PD-54 /KU	PD-S802 /HB	PD-S802 /HEM	PD-S802 /HL	PD-S802 /SD	PD-S802 -G/HEM	
NSP	Rear base E8	• • • • •	• • • • •	PNA1971	• • • • •	• • • • •	• • • • •	
NSP	Rear base L8	• • • • •	• • • • •	• • • • •	PNA2029	• • • • •	• • • • •	
NSP	Rear base D8	• • • • •	• • • • •	• • • • •	• • • • •	PNA2024	• • • • •	
NSP	Rear base E8G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PNA2018	
	Side sheet	PNM1226	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Tray panel	PNW2280	PNW2280	PNW2280	PNW2280	PNW2280	• • • • •	
	Tray panel G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PNW2335	
	Panel stabilizer L	PNW2281	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Panel stabilizer R	PNW2306	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Function panel 54	PNW2332	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	Function panel 8	• • • • •	PNW2279	PNW2279	PNW2279	PNW2279	• • • • •	
	Function panel 8G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PNW2336	
	Name plate	RAN1008	VAM1032	VAM1032	VAM1032	VAM1032	• • • • •	
	Name plate 3182N	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	RAN1011	
	Protector F	PHA1251	PHA1243	PHA1243	PHA1243	PHA1243	PHA1243	
	Protector R	PHA1245	PHA1253	PHA1245	PHA1245	PHA1245	PHA1245	
	CD packing case 54	PHG1956	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	
	CD packing case B8	• • • • •	PHG1963	• • • • •	PHG1963	PHG1963	• • • • •	
	CD packing case E8	• • • • •	• • • • •	PHG1941	• • • • •	• • • • •	• • • • •	
	CD packing case E8G	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	PHG1958	
	Remote control unit	PWW1072	PWW1072	PWW1072	PWW1072	PWW1072	PWW1075	
	Battery cover	PZN1001	PZN1001	PZN1001	PZN1001	PZN1001	PZN1011	
	Cord with mini plug	PDE-319	• • • • •	• • • • •	PDE-319	PDE-319	• • • • •	
	Operating instructions (English)	PRB1196	PRB1196	• • • • •	PRB1196	PRB1196	• • • • •	
	Operating instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Portuguese)	• • • • •	• • • • •	PRE1183	• • • • •	• • • • •	PRE1183	

MAIN PCB ASSEMBLY

PWZ2528, PWZ2501 and PWZ2500 have the same construction except for the following :

Mark	Symbol & Description	Part No.			Remarks
		PWZ2500	PWZ2528	PWZ2501	
	D391 – D394	1SS254	• • • • •	• • • • •	
	L391,L392	LAU010K	• • • • •	• • • • •	
	C393	CKCYF103Z50	• • • • •	• • • • •	
	R391	RD1/6PM244J	• • • • •	• • • • •	
	R392	RD1/6PM102J	• • • • •	• • • • •	
NSP	CN301 (3P Jumper connector)	52147-0310	52147-0310	• • • • •	
	JA391,JA392(Jack CONTROL IN OUT)	PKN1004	• • • • •	• • • • •	

Although PWZ2500 and PWZ2529 are different in part number, they have the same service parts.

AUDIO PCB ASSEMBLY

Although PWZ2563 and PWZ2544 are different in part number, they have the same service parts.

AUDIO TRANS. PCB ASSEMBLY

Although PWZ2565, PWZ2547, PWZ2628, PWZ2549 and PWZ2545 are different in part number, they have the same service parts.

SERVO TRANS. PCB ASSEMBLY

PWZ2567, PWZ2548, PWZ2629, PWZ2550 and PWZ2546 have the same construction except for the following :

Mark	Symbol & Description	Part No.					Remarks
		PWZ2546	PWZ2567	PWZ2548	PWZ2629	PWZ2550	
⚠	IC31	• • • • •	ICP-N10	ICP-N10	ICP-N10	ICP-N10	

FUNCTION PCB ASSEMBLY

Although PWZ2557 and PWZ2542 are different in part number, they have the same service parts.

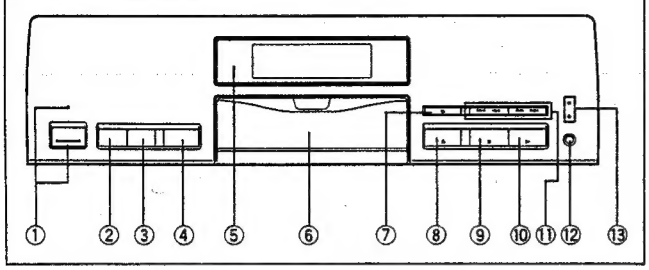
VOLTAGE SW PCB ASSEMBLY

Parts List

Mark	No.	Description	Part No.
SWITCHES			
⚠	S5, S6	VOLTAGE SELECTOR	PSB1006

8. PANEL FACILITIES

PD-54/PD-S802

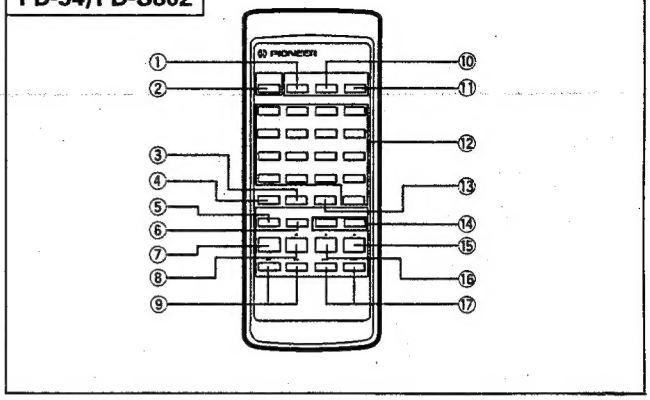


FRONT PANEL

① **POWER STANDBY/ON switch and STANDBY indicator**
② **DISPLAY OFF button**
③ **TIME button**
④ **REPEAT button**
⑤ **Remote sensor**
Receives the signal from the remote control unit.
⑥ **Disc tray**
⑦ **Stop button (■)**
⑧ **OPEN/CLOSE button (▲)**
⑨ **Pause button (II)**
⑩ **Play button (►)**
⑪ **Track/Manual search buttons (|◄◄ ◄◄/►► ►►|)**
⑫ **OUTPUT SELECTOR button**

⑬ **DIGITAL/ANALOG output indicators**

PD-54/PD-S802



REMOTE CONTROL UNIT

Remote control buttons with the same names or marks as buttons on the front panel of the player control the same operations as the corresponding front panel buttons.

① **OPEN/CLOSE button**
② **POWER button**
③ **CHECK button (PD-54/PD-S802 only)**
④ **Program button (PROGRAM/PGM)**
⑤ **COMPU/AUTO EDIT button**

⑥ **TIME FADE EDIT button**
⑦ **PEAK SEARCH button**
⑧ **STOP button (■)**
⑨ **MANUAL search buttons (◄◄ / ►►)**
⑩ **REPEAT button**
⑪ **RANDOM PLAY button**
⑫ **Track number/Digit buttons (1 - 16, >16)**
⑬ **CLEAR button**
⑭ **INDEX buttons (←/→)**
⑮ **PLAY button (►)**
⑯ **PAUSE button (II)**
⑰ **TRACK search buttons (|◄◄ / ►►|)**

9. SPECIFICATIONS

1. General

Type ..... Compact disc digital audio system
Power requirements
U.S. model ..... AC 120 V, 60 Hz
U.K. and Australian models ..... AC 230 - 240 V, 50/60 Hz
Singapore model ..... AC 220 - 230 V/230 - 240 V, 50/60 Hz
Multi-voltage model ..... AC 110/120 - 127/220/240 V, 50/60 Hz
Power consumption
PD-54/PD-S802 ..... 18 W

Operating temperature ..... +5°C - +35°C
+41°F - +95°F
Weight
PD-54 ..... 5.0 kg (11 lb)
PD-S802 ..... 5.0 kg (11 lb)

External dimensions
PD-54 ..... 440(W) x 270(D) x 131(H) mm
17-11/32(W) x 10-5/8(D) x 5-5/32(H) in.
PD-S802 ..... 420(W) x 270(D) x 131(H) mm
16-9/16(W) x 10-5/8(D) x 5-5/32(H) in.

2. Audio section

Frequency response ..... 2 Hz - 20 kHz
S/N ratio ..... 110 dB or more (EIAJ)
Dynamic range ..... 98 dB or more (EIAJ)
Harmonic distortion ..... 0.0021% or less (EIAJ)
Output voltage ..... 2.0 V
Wow and flutter ..... Limit of measurement
(±0.001% W.PEAK) or less (EIAJ)
Channels ..... 2-channel (stereo)

3. Output terminal

Audio line output jacks (FIXED)
Control input/output jacks (PD-54 and Singapore and multi-voltage models of PD-S802 only)
Optical digital output jack
Coaxial digital output jack (PD-54 and the U.K. model of PD-S802 only)
CD-DECK SYNCHRO jack

4. Functions

Basic operation buttons
- PLAY, PAUSE, STOP

Search function
- Direct play
- Track search
- Manual search
- Index search

Programming
- Maximum 24 steps
- Pause
- Program check/correction
- Program clear (single track or all tracks)

Repeat functions
- 1 track repeat
- All tracks repeat
- Program play repeat
- Random play repeat

Switching display
Time consumed, remaining time (track/disc), and total time

Display off function

Timer start

Peak search

Compu/Auto program editing
Selects the tracks within the specified time.

Time fade editing

5. Accessories

- Remote control unit 1
- Size AAA/R03 dry cell batteries 2
- Control cable (PD-54 and Singapore and multi-voltage models of PD-S802 only) 1
- Output cable 1
- Operating instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.